SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

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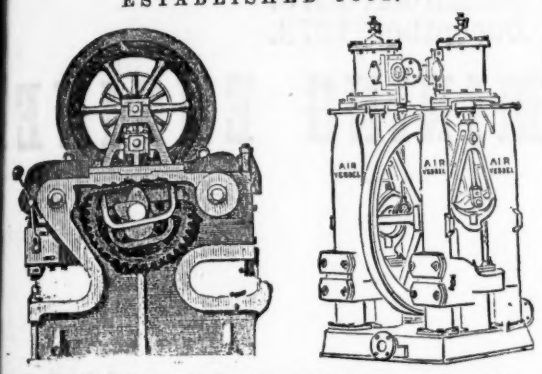

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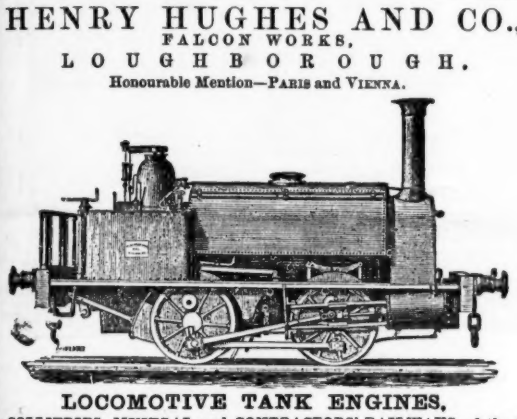

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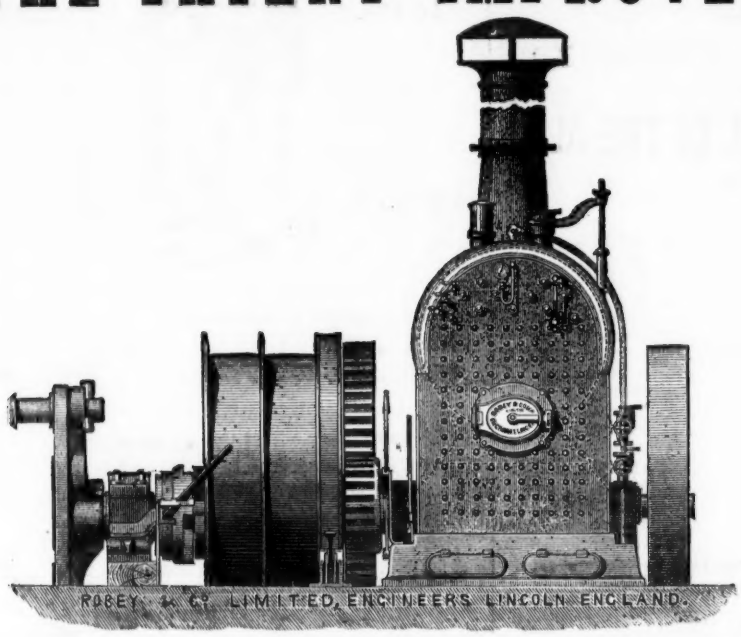

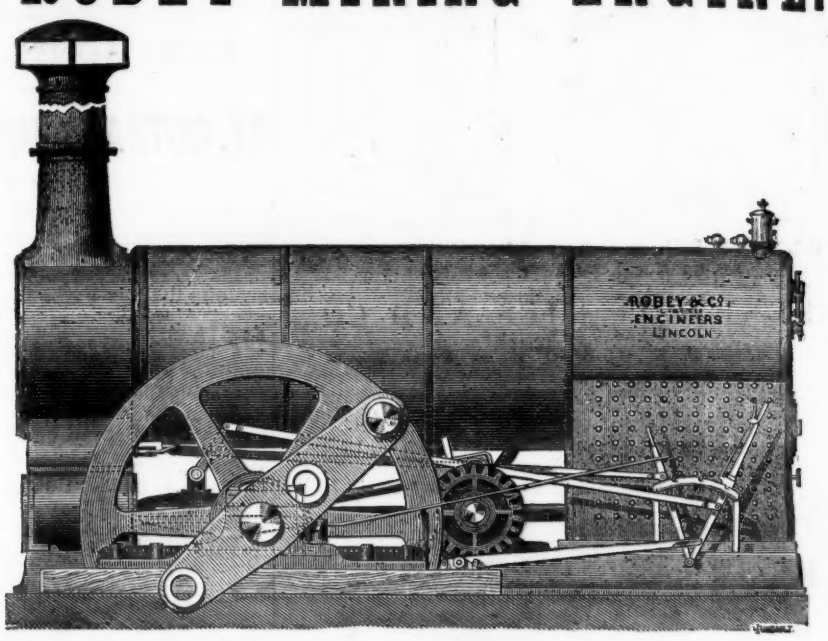

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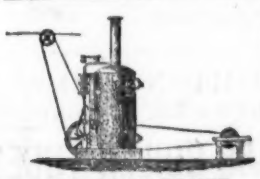

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Original Correspondence.

AUSTRALIAN TIN.

SIR,—I was confined to bed by illness last month, and so did not send the yield of Australian Tin Mines, as usual; but I send this month the approximate yield for the two last months of the year. I say approximate, as I have been unable to ascertain the quantities sent by rail from Warwick, but, for the sake of comparison, I have assumed a quantity less than the average of previous weeks. I also send a synopsis of the quantities sent during the year, showing a quantity for the last six months of 4687 tons, against 3717 tons for the first six months, giving an increase of 970 tons, and a gross total of 8404 tons, that is a steady and increasing yield, averaging 700 tons per month.

This will now close the self-imposed task that I undertook for the benefit of Cornish mineowners, that they might be guided in their operations by an exact knowledge of the quantities of tin produced here. I hope it has been of service. The yield now is steady, and not decreasing. Should any great change occur I will again address you.

QUANTITIES OF TIN ORE SENT FROM THE AUSTRALIAN MINES DURING THE FOUR WEEKS ENDING DECEMBER 5, 1874.

			Tons	c.	qr.	lbs.	Tons	c.	qr.	lbs.
Nov. 12		Via Warwick	174	4	1	29				
19		Ditto	66	6	1	26				
26		Ditto	97	13	0	12				
Dec. 3		Ditto (say)	80	0	0	0=	391	4	0	11
Nov. 14		Via Murrurundi	76	12	2	14				
21		Ditto	55	7	1	7				
28		Ditto	97	7	3	11				
Dec. 5		Ditto	105	7	1	5=	334	15	1	19
Nov. 9		Via Grafton	14	3	0	0				
16		Ditto	10	5	0	0				
18		Ditto	29	6	0	0				
23		Ditto	35	7	0	0				
24		Ditto	8	16	0	0				
30		Ditto	61	7	0	0=	159	4	0	0
Total							Tons	885	3	2	2

DURING THE FOUR WEEKS ENDING JANUARY 2, 1875.

			Tons	c.	qr.	lbs.	Tons	c.	qr.	lbs.
		Via Warwick (say)	96	19	1	22	350	0	0	0
Dec. 12		Via Murrurundi	33	17	0	24				
19		Ditto	29	19	3	0				
26		Ditto	75	1	2	12=	235	18	0	2
Jan. 2		Ditto	62	16	0	0				
Dec. 7		Via Grafton	5	9	0	0				
11		Ditto	22	9	0	0				
15		Ditto	38	10	0	0				
18		Ditto	31	13	0	0				
26		Ditto	48	18	0	0=	209	15	0	0
28		Ditto								
Total							Tons	795	13	0	2

PRODUCE OF THE AUSTRALIAN TIN MINES FOR THE YEAR 1874.

			Tons	c.	qr.	lbs.	Tons	c.	qr.	lbs.
January			Tons 520	8	3	3				
February			681	15	1	17				
March			736	10	0	27				
April			514	12	0	11				
May 22 (the four weeks ending)			625	14	3	20				
June 19	ditto		628	0	1	14=	3717	1	2	16
July 17	ditto		625	18	0	11				
August 15	ditto		578	6	2	4				
September 12	ditto		557	9	0	5				
October 10	ditto		512	11	0	27				
November 7	ditto		732	3	0	17				
December 5	ditto		885	3	2	2				
January 2	ditto		795	13	0	2=	4687	4	2	12
Total							Tons	8404	6	1	0

Sydney, Jan. 15. C. E.

MINING IN QUEENSLAND.

SIR,—The year 1874 has drawn to a close, and although this colony may be said to have been "suffering a recovery" from the over-speculation in mining during the previous year. Yet, altogether, in the production of minerals we have been fairly progressive.

TIN.—There was received at the Warwick Railway Terminus, for transhipment, during the month of December, of stream tin, 432 tons 16 cwt. 0 qr. 13 lbs. (including a small trial lot of about 6 tons of lode tin ore from one of the New South Wales mines, and which has been shipped to Sydney to be smelted); of ingot tin, 6 tons 8 cwt. 3 qr. 2 lbs. The total being a slight decrease on the previous month's receipts, and a decrease of about 50 tons on the same month last year. The year's receipts of tin at the Warwick Railway Terminus has been:—

	Stream tin. Tons	c.	qr.	lbs.	Ingot tin. Tons	c.	qr.	lbs.
First quarter	1317	12	1	5	0	0	0	0
Second quarter	1455	11	0	9	0	0	0	0
Third quarter	1451	17	1	8	8	0	2	1
Fourth quarter	1360	6	0	15	8	19	0	4
Total Tons	5585	6	3	9	16	19	2	5

These figures show a steady yield, slightly *less* in quantity than the receipts of the previous year, and quite the reverse to the anticipations expressed in my letter of January last. The quality of this year's stream tin will average much higher than last year. There are no parcels of very low now to be met with; but, again, instructions have been issued by local proprietors not to clean the stream tin to too high a standard, as much loss and expense are caused, as the local smelters have on receipt to reduce it again before smelting. We may fairly estimate the year's stream tin at 63 to 65 per cent. of tin, which will bring up the quantity of pure tin for both years to about equal. The returns at the port of Grafton and at the Murrurundi Railway Terminus (which I am not in a position to give) will be the increase or decrease during the year of the production of Australian tin.

The receipt of the 6-ton parcel of lode tin is a memorable event; it is the first parcel that to my knowledge has been forwarded, and if it proves payable its production will quickly increase. There have been only two ships cleared direct for London since my last—the Anglo-Saxon, with 28 tons ingots, and the Martaban, with 28 tons 12 cwts. of ingot tin.

In GOLD there has been a considerable increase in the year's production. The Northern exports are not yet made up, but the quantity produced at Gympie has been 3212 ozs. in excess of 1873—45,968 ozs. for 1874, against 42,756 ozs. for 1873. Yesterday telegraphic news was received here from Cooktown, *via* Townsville, of another rich and extensive gold field being discovered in the Palmer district; it is situated at the head of the Normanby river, and only 92 miles from Cooktown (the port). The prospectors brought in 40 lbs. of gold per man. This news has caused considerable excitement amongst our digging population, and another and a much more extensive rush is inevitable as soon as the wet season, which is now on, is considered over. A large number of the tin miners are certain to try their luck, for they are not satisfied with their present earnings.—*Brisbane, Jan.* 5. RESIDENT.

RICHMOND CONSOLIDATED MINING COMPANY.

SIR,—Your correspondent "A Member of the Stock Exchange" has put forward some facts which confirm information that has come to my knowledge within the past few days—that for some time past the mine has been worked much too fast. I admit that I attached such importance to the information as to cause me to dispose of my shares, and therefore have in that respect deprived myself of the right to refer to the company in your columns, but notwithstanding this I possibly may be pardoned if I venture to ask whether the directors have received from their newly-appointed manager a report upon the mine—if so, what is its nature? All shareholders have had up to the present time have been reports of "professors," whose opinions, however valuable theoretically, are altogether different, and contain much less real and dependable information than a report from a practical miner who deals alone with facts. Does Mr. Rickard's report confirm the unofficial statements continually being made that every "development" opens ont a chamber of wealth, or does it indicate that ore has been extracted at the expense of exploration, and that the result must be the sacrifice of the future, unless, indeed, a totally different and more conservative system is at once adopted? AN EX-SHAREHOLDER.

March 10.

RICHMOND MINING COMPANY.

ANSWER TO "A SATISFIED SHAREHOLDER" AND MR. GEORGE HOPKINS, DEPUTY-CHAIRMAN.

SIR,—Two rather bold statements, signed as above, in reply to my criticisms of a previous date, appeared in the Journal of Jan. 2. As I expected, these gentlemen, particularly Mr. Hopkins, have not successfully refuted the charges I preferred against their colleague of Nevada, whose cause they have injured more than served. Their chief object has been to make it appear to the public that I have been influenced by unworthy motives, that I am bitterly opposed to Mr. Probert on account of his having discharged me, that my representations cannot be sustained, and that, therefore, I am not entitled to much confidence. What profound reasoning these sapient champions have here exhibited! How wonderful their sagacity, and how complacently they make out a case of *lex talionis* against me! Verily the deputy-chair of the Richmond board when filled by Mr. Hopkins contains more wisdom than is often found associated with chairs occupying a like position. This is proper, hence my admiration. Wisdom in others should always be honoured, especially when found directing and animating the deputy-Chairman of a metropolitan mining board. Surely this luminous-minded officer could not have presided over the deliberations which resulted in the appointment of Mr. Probert. I cannot believe it, however strongly the conviction may be forced upon me. If he did then my estimate of his penetration, wisdom, and judgment is very considerably lessened—in fact, has descended to a point indicated by zero. I am also prone to the habit of admiring certain other manly attributes, such as honour, truth, and the like, though to do so may be accounted a weakness unbecoming in a Herodian. This, no doubt, is the opinion of Mr. Hopkins and the "Satisfied" one, for have they not clearly expressed it in their letters, which must be taken as an index to their thoughts. Yes, and more in language synonymous in meaning. With regard to the dismissal question, I will presently show them how sadly they have erred, and how greatly they have been deceived, by some person whose regard for truth is not of the order enjoined by the eighth commandment. Can it be that the Rev. E. Probert has entirely forgotten his theological training amidst the excitements and associations of Nevada? Indeed, it would appear that such is the case, if I am to consider him as the author of so astoundingly inaccurate a statement as the one charging me with having been dismissed from the Richmond. He alone had the most interest in giving currency to this report, which is utterly at variance with truth and fact, and the strongest invectives which I might employ in repelling slander so base would but idly express the force of my indignation. The *ex cathedra* utterances of the deputy-Chairman are now easily accounted for; yet being written on sand, like the evidences of his own importance, they are not unlikely to be found preserved amongst the musty records of the past. To Mr. Probert, whatever may be said to the contrary, I owe no personal animosity, and, therefore, will not pile *Pelion on Ossa* to too great an extent, though I might find the means to do so if I choose, but I do not; I will leave him to his own reflections, and the care of his friends will do the balance. Mr. Hopkins is my game at present, the "Satisfied Shareholder" shall not be disturbed, for I am willing he should enjoy his *otium cum dignitate* in return for the mildness of his manner towards me. The deputy-Chairman, however, is another personage; he is an official oracle, though, perhaps, not quite so safe a one to consult as the one to whom the Athenians had recourse during the golden age of their country's history. "Tush!" he says contemptously, "My position and influence are too much for this Nevada braggart; I will pen a line or two whose force and reasoning will completely annihilate him." Vain boast; it would have been much better that he had first satisfied himself of being right, and if found so then go ahead. Had he done this he would not now be placed in the unenviable predicament he occupies. Of this the public shall judge. The following are the facts:—Instead of being dismissed, as represented, it happens that I had the satisfaction of tendering my resignation; not, however, to Mr. Probert, who at that time had barely assumed charge, but to the late secretary, Mr. Howell, who succeeded Mr. McGee in the management pending the arrival of the present incumbent from London. I was appointed on May 1 last by Mr. McGee to the most important position within his gift, and during my occupancy of it its onerous duties were performed with honour to myself and interest to the company. It is possible, too, that I should have continued to fill it had I not early foreseen that there could be no enduring harmony exist between myself and Mr. Probert, whose mental peculiarities are not of the angelic type. Business of an important personal nature occupied my attention about this time, and deeming it paramount to all else I concluded to withdraw from the Richmond for the purpose of giving it undivided care and thought. I according left the works late on the evening of July 2 following without communicating my decision to anyone, for it was then too late to have done it. I returned, however, to my office early next morning, and set the men to work, and again left for town to meet Mr. Howell. In the meantime having reached the office he learnt that I had left, and still continuing to exercise the functions of superintendent; and here I will do him the justice to remark, *en passant*, that he was a faithful officer, and that it would have been well had he been retained in it. He sent Mr. Titus, the yard foreman, to request me to return and assume my duties. But this not being to my mind just then I entrusted the keys of my office to the messenger, with the injunction to give them to Mr. Howell with my compliments, and to tell him that since I did not intend to go back again he had better fill my place as soon as convenient. Such is the true version of how I came to disconnect myself with the Richmond, in whose material welfare I was, and am yet, deeply interested. In proof of this, I need but refer those who think otherwise to the back files of the Journal, to my private letters to gentlemen still identified with it, to my actions here, and to my writings in the press of the country in support of it, to my fearless defence of Messrs. Probert and Corrigan at a time when they were followed to England by partizan hate, and furiously assailed by word and pen on every side; and, lastly, to the faithful and graphic reports I gave of its works, mines, and products during a period of six months or more as mining editor of the Eureka *Sentinel* and correspondent to the *Mining and Scientific Press* of San Francisco. These are among some of the things to which I can, undeterred by fear of denial, point in refutation of the insiduous sentences, flimsy arguments, and mere assumptions of the deputy-Chairman. He, no doubt, is the recipient of a handsome salary for filling a sinecure office, while I patiently did all of the above without thanks or reward, except the kind awarded to me by the Nevadan satrap of the Richmond, and his no less ungrateful colleague of No. 44, Coleman-street. Corporations, however, are soulless concerns. Having now shown that I was not dismissed by Mr. Probert, who for some days did not even know of my having left, which I can, if necessary, prove by competent witnesses who are yet in the flesh, I ask where was the motive for my assailing him in the manner I did? None at all, beyond the desire to assist in reforming the abuses which, like ugly excrescences, were daily cropping out on all sides. Mr. Hopkins may cry pshaw or fudge just as long as he pleases, for his exclamatory utterances will not alter the state of things, nor will thinking, intelligent men take them as demonstrative evidence in support of his conclusions. His littleness of soul also prompts him to think that so small a consideration as Mr. Probert's refusal to allow me to inspect the mine was one of the causes which led me to become his accuser. Nothing, however, can be further from the truth. No such trifling affair would have induced me to appear in print.

I also emphatically deny that there was any "risk incurred to the works" (see "Shareholder's" letter) by either my neglect or absence, or that there was the least suspension of business on account thereof. The men who were under my charge were capable of preventing injury of any kind to the premises. The "risk incurred" was all bosh, merely gotten up for effect, like the characteristic costume of an harlequin, or the colourings introduced to enliven and sustain the idealities of an artist. When I penned the charges which had provoked the Quixotic action of Mr. Hopkins I was embued with a lively sense of the responsibilits I was about to assume, yet this did not deter me. The rectitude of my own motives sustained me and will sustain me, even though misrepresented, villified, and *mis*-interpreted by Mr. Hopkins *et al.* Now, a word in relation to his other sophistries regarding coke, roads, and bullion. The first, whose amount is 700 instead of 500 tons, still lies at Elko, strewn alongside the tract of the Central Pacific Railroad, exposed to the dispoiling influences of the elements on the one side and the necessities of the citizens on the other. Everybody down that way burns coke now-a-days provided them by the shareholders of the Richmond. Wood is a drug at Elko now, and the icy blasts of winter are uncared for so long as this liberality is continued. A few figures will illustrate more clearly the unique system of financing adopted by the combined wisdom of the body presided over by our deputy-Chairman than anything I can utter regarding it. Coke during my time could not be laid down at Eureka short of $60 per ton, though I believe it can now be furnished from Pitsburg for $55 per ton. Assuming the latter price to be the correct one, 700 tons of coke would cost $38,500 delivered at the Richmond Works. But since it is still at Elko, 85 miles distant, we must deduct from this sum $4200, which has yet to be paid for freighting it to Eureka, which will leave a residue of $34,300 invested in an idea or object, or whatever else Mr. Hopkins may please to call it, from which there is no return, and upon which also a sum equal to $343 per month has to be paid in interest, and which multiplied by four (number of months lying there) gives $1372 that has been paid as interest on the sum invested in the object. Add to this a few hundred dollars more charged by the Railroad Company for storage while on its course, pending the delay occasioned in conjuncture relative to the hauling of it, and we will have a tolerably clear conception of the financial ability displayed in the management of the affairs of the Richmond. To quote from the letter of our deputy, "Mr. Power in his ingenuousness forgot to state that at the date of his letter the roads were well nigh impassable—the bullion has been forwarded to market, and the accumulation at the works, and consequent loss to the company, about which Mr. Power is so concerned, has not taken place, and his apprehensions have not been realised." No? I say yes; my appreshensions have been fully verified, and the bullion has accumulated beyond the amount which ordinary prudence would permit, and this has not to be attributed to the impassable condition of the roads, but to the cause I originally alleged. The Eureka *Sentinel*, which is a good authority on this point, says, under date of the 5th inst., "We yesterday stated that there was in the neighbourhood 1000 tons of bullion corded in huge piles in the yard at the Richmond Works. This we have been informed is not so, 700 tons more nearly approximates to the correct amount." Now, why the necessity for correction if the managers felt all right about the matter? Damage to managerial reputation, my boy: there is the rub. It says in plain words, "I do not want this report to gain currency in London; it would injure me, and besides give force and colour to the assertions of Mr. Power." The roads have been in excellent condition this winter, which has been mild compared to past ones. The interest paid on the money drawn against the bullion, when added to the former sum, shows quite a respectable item of expenditure incurred for the carrying out of an abstract idea.

I might, did I choose, go on *ad infinitum*, but what is the use of adding to the miseries of the *genius loci* of the Richmond? The fume and smoke condenser, or flue connecting with the furnace, constructed at great cost, affords a standing item to the *Sentinel*. Almost every issue of this paper contains some notice of that unhappy condenser, which appears to be continually on fire. "Our Standing Item" is the significant heading whenever a reference is made to it. What is the reason of this? Simply that Mr. Probert, in one of his eccentric moods, conceived the notion to withdraw from it the exhaust pipes, which connected it with the engine, and which were originally placed in it so as the exhaust would assist in precipitating the fine metallic particles which escape into it from the furnaces, and also keep the framework so asturated that danger from fire would be avoided. Since withdrawn fires have been of frequent occurrence, and the conflagaration of July 4 last is solely attributable to his mania for experimentalising.

With reference to his refusal to permit me to see the mine, I find the following entries in my note book, under date July 24 and 28 last, which I reproduce verbatim for the benefit of the deputy-Chairman:—"July 24: Called at the Richmond this morning: saw Probert, but he refused entrance to mine without permit from London. Intimated I would send for order: told me if I did he would 'cable to stop' it. Says the mine is in good condition, and that Mr. McGee had conspired with others to damage it, and hurt the reputation of the company. Says he has not sold his shares, but intends to buy more. Coal looks low in bins. Several loads on grade, and coalmen much excited." "July 28: Had long conversation with Mr. Probert to-day—mine and charcoal the subjects. Asked my opinion in relation to latter, which I gave him unreservedly. Speaks favourably of former, but is decidedly bearish on the latter. Exhibits no policy and less judgment. Coalmen becoming desperate; they are terribly in earnest, and am fearful of the consequences of his inconsiderate action. Stoppage of furnaces inevitable without something is speedily done. Asked if I still wrote for *Sentinel*—had some motive for the question beyond mere curiosity. Told me that he had 'bought 600 additional shares of Richmond, and told his friends to do the same.' Price ruling at 6⅝. Told him that I all along believed he was acting in the interest of the stock-jobbing schemes of his friends." In conclusion, I claimed nothing for Mr. McGee that he was not justly entitled to, whatever Mr. Hopkins may think. All that I have here asserted can be substantiated, and more, too, if again called upon to associate myself with this question. My statements were given *bona fide*, which is more than can be said of the deputy-Chairman, to whom I dedicate this in token of my esteem.—*Tybo, Nevada, Feb.* 12. J. D. POWER.

FULLER'S REEF GOLD MINING COMPANY.

1217 tons of quartz taken out by the first owners yielded				1265 ozs. of gold.	
660	,,	,,	Messrs. Simpson	1897	,,
801	,,	,,	Messrs. Simpson & Levein	1247	,,
2678 tons of quartz, yielded				4409 ozs. of gold.	

This was from the workings of the FULLER'S REEF GOLD MINE.

TO THE DIRECTORS OF THE FULLER'S REEF GOLD MINING COMPANY.

I have this day seen a printed copy of a report from the Committee of Investigation on the Fuller's Reef Gold Mine. May I be allowed to suggest that the duties of the committee be extended, and that their report be not considered as complete until they view the mine in New South Wales; or, if the gentlemen now forming the committee are unable to proceed to Moonan Brook, that three other gentlemen in this colony be appointed in their stead (there are many men to be found out here fully equal to the task), and that they make a careful and diligent report on the mine itself.

It would be more satisfactory to the shareholders, and, at the same time, give the committee the opportunity of questioning and examining the basis on which Mr. Holman's and my own reports were framed. There is no doubt whatever of this fact, that 2678 tons of quartz were taken out of the Fuller's Reef, and yielded 4409 ozs. of gold. This one would fancy is of itself sufficient to establish the character of a mine. It is not merely a professional opinion got up for the purpose of selling the property, but the several parcels making up the total are given, and by whom they were taken out, added to which undoubted evidence can be produced as to the correctness of the statements. After this scarcely any work was done in the mine until your company recommenced working it. How is it, therefore, that its yield falls off immediately? Mr. Munday is considered a very clever and an honourable man, and having, as he has, a vast amount of experience, his opinion cannot be lightly passed by; his report, however, as to the mine's unproductiveness surprises and confuses not a few out here as well as in England.

There are such things as lodes pinching out and making again, strikes of ore cutting out and coming in again; and I would ask has there been sufficient time for Mr. Munday even to explore thoroughly those parts of the old rich workings to enable an opinion to be given beyond all doubt that the lode is unmistakably gone, worked out, not recoverable, and valueless? Supposing that the vein and strike of ore have for a time been lost sight of. Are they not to be found again, and will they not be recovered with all the favourable results as heretofore? Why, your workings, I am informed, are not yet below the level of the valley outside. When I saw the property in August, 1872, there was a very strong masterly vein, carrying gold, such an one as ought not to be abandoned as being valueless without very grave and due consideration. A committee, therefore, from your board ought surely to visit the mine, which is now being condemned by one opinion only in the face of all those old returns. It is not the general opinion of those who know the mine out here that the supply of gold is exhausted, and that it will no longer pay. Not having my papers or report out here to refer to, and my memory not serving me at this moment, I cannot tell what I actually said with reference to the supposition "that there was an abundance of gold;" but I believe my remarks were chiefly directed to what had been found, and that I saw no reason why such things should not be done again. Yet I most unhesitatingly state that I believe there is much more gold in the veins of the Fuller's Reef than is now generally supposed after what Mr. Munday has said, and I find I am not singular in this opinion.

The vendors were satisfied with their mine, and you should remember they did not seek to sell it to you, but they were solicited by the purchaser to sell to him. The vendors were gentlemen living in the colony who knew its value, and who from its good repute purchased it as an investment for their own capital, and were then content with it. The statement of figures (which are reliable), not professional reports, brought about this purchase. Professional reports when asked for are made on the best evidence obtainable at the time, giving statistics and details of appearances of the properties reported on. Here are statistics given.

When I saw the mine the veins were to be seen, and the gold in them; unquestionably up to the time referred to 2678 tons of quartz were taken out and crushed, yielding 4409 ozs. of gold. If that is not a sufficient test to be applied to a mine with such shallow workings, I wonder what on earth gentlemen do want. You will see the manager's report conveying his opinion is very carefully put—"But that the working of the reef as a whole must be remunerative seems to me to be a question of much uncertainty." This does not pronounce the mine to be valueless. It absolves him from any responsibility should any adverse circumstances occur from time to time, at the same time allowing an opening for the credit of any fresh successes in the workings to be attributable to his labours and management, which in a good mine like the Fuller's Reef he is pretty sure to get.—*Rylstone, Sydney, Dec.* 23. R. WATERS.

NEW QUEBRADA MINING COMPANY.

SIR,—I was in hopes that the day for touting circulars was over, and that I should not again have that nuisance inflicted on me, but I find myself mistaken, for I have within these few days received one from a person whose name I recollect as having similarly honoured me on a former occasion. I presume that it is to a shareholder in the above company that I am indebted for the compliment, as I find on passing my eye over his list that it is the only one in which I am interested, or am at all likely to be, as I should make a special point of avoiding all those which are strongly recommended as *bona fide* investments, and which he kindly informs me "can be secured through him." I have been from the outset a very considerable shareholder in the above company, having great faith in the real value of the property, but have frequently been tempted to sell my shares in disgust at the said mismanagement which for so many years has marked the course of this singular undertaking, but I have now confidence in its management, and have recently increased my interest, nor shall I be induced to part with any portion of it by the opinion of Mr. Cobb, or any other dealer in circulars, as well as shares, though that appears to be the object with which it is given. There is, however, one part of the management to which I find exception, and I know that a large number of the shareholders do the same, and that is to the extreme reticence of the directors as to what is going on at the mines, and as to the progress of the railway in which we are all so deeply interested.

I am informed by a very large shareholder, who goes frequently to the office to enquire, that everything is going on most satisfactorily with both, and, so far as I am concerned, I am content with this source of information, but I have a friend in the country, whom I originally induced to go into this company, who complains, and I think with great justice, that while he is pestered with these halfpenny circulars disparaging his property, he never gets a word of information from the directors excepting at the half-yearly meetings, and, as I hear that a large majority of the shareholders reside in the country, there are, doubtless, many more who are subjected to the same annoyance. As this will, probably, meet the eye of some of the directors I trust that they will act upon this suggestion.

I have observed in the papers that there have been frequent fluctuations in the price of these shares, with an upward tendency, for some time past, and on enquiring the cause of my broker he tells me that the whole of the 15,000 shares issued to the contractors have been gradually absorbed by the public, and that as the railway approaches completion the buyers preponderate, and that all sorts of unfounded rumours are resorted to to keep down the prices fictitiously. I trust, however, that my fellow-shareholders will not be induced to part with their shares on any flimsy pretences at the very moment when, from their intrinsic value, there is sure to be

a very considerable rise, the opinion of Mr. Cobb and his fellow-circularists to the contrary nevertheless notwithstanding.
March 10. AN ORIGINAL SHAREHOLDER.

THE BENSBERG LEAD MINING AND SMELTING COMPANY.

SIR,—The mining interest well remember with what a flourish this undertaking, about three years ago, was ushered before the public. Any reasonable man reading the reports circulated with the prospectus could but believe the property to be a good thing; and, in addition to these printed reports, numbers of practical men, who from their experience should be judges in such matters, still say the mine is undoubtedly a valuable property, but the great mistake is the very slow progress being made in its development; therefore, a short review on the subject I trust will do no harm to any party or parties interested in the welfare of the concern.

We must bear in mind that the late local manager, Mr. Hoffmann, made regular returns of ore, and, for the short time he served under the directors of the company, he did a great deal of work by making large dressing-floors, erecting a great deal of first-class dressing machinery, as also steam pumping and hauling machinery. To use his own words, he was just getting in a position to push things a-head; but, notwithstanding this, a change in the local management was deemed necessary, and about fifteen months since Mr. Craze was appointed Mr. Hoffmann's successor. Unfortunately, however, the change does not appear to better the circumstances of the company; dividends we have none, and, what is sad to relate, the mine is idle, full of water, and has been so for some months.

Mr. Craze, on taking the management, found fault with the machinery; but we are informed that the directors were particularly careful about erecting this machinery. Plans for the same were first submitted to, and approved by, an eminent English consulting engineer, which, of course, is so far quite right; but, when we consider the statements put forth in the prospectus, and the large capital subscribed for the property, it does seem strange that new machinery, said to be first class, and so recently erected, should only prove capable of putting the mine about 20 fms. deep from surface. Supposing the machinery not being capable for sinking the mine deeper, could not Mr. Craze manage to keep the water sump at that level, so as to explore the richness of the lodes in length until other class machinery could be got?

I may be considered ignorant in mining matters to attempt to address the Editor of the *Mining Journal* on such a subject; but, Sir, in comparing the reports made on the property with the results so far obtained, I confess I am much puzzled. Mr. Craze, the manager, not knowing the German language, it seems strange that a young man also not knowing the language should be appointed at the mines as chief clerk. If two Germans were appointed to the technical and commercial management of a mine in England, neither of the two knowing the English language, I think, Sir, we should not hesitate to call it a bad arrangement, and say the thing is likely to come to grief. Surely, the clerk, at least, should thoroughly know the language.—*March* 6. A SUBSCRIBER.

THE CESENA SULPHUR MINES, ITALY.

SIR,—Having been recently commissioned to visit the sulphur mines of Cesena, in Italy, perhaps a few brief particulars relating to this valuable and comprehensive undertaking may not be unacceptable to some of your readers, more particularly as the general meeting of shareholders is, I am informed, shortly to be held in London.

The mines, comprising the Boratella, the Ca di Guido, the Borello Tana, the Polenta, and the Monte Codruzzo properties, are situated on the slopes of the sub-Apennine chain of mountains, not far from Cesena—an interesting town of about 8000 inhabitants. Cesena, one of the most ancient episcopal sees in Italy, appears to have played a very important part in the events recorded in early history. St. Philemon held office there in the year A.D. 92. Cesena can boast of being the birthplace of two popes—Pius VI., whose statue adorns the Palazzo Publico, born in 1717, and Pius VII., in 1742—whilst in the year 1377 the town had the distinguished honour of being sacked by Cæsar Borgia.

At the Cesena Mines the sulphur is found in its native state, mechanically associated or intermingled with earthy minerals and rocky matter, the chief matrix being sulpho-carbonate of lime. The whole mass, of which about 20 per cent. is pure sulphur, constitutes a nearly horizontal, or slightly basin-shaped, bed or layer (not unlike a coal seam) of from 3 to 4 yards in thickness, embedded in the superior, or upper, miocenic division of the Tertiary formation. Various theories might be advanced in explanation of the original deposition by Nature of the Cesena sulphur, but, probably, the most rational theory is the following:—The sulphur-bearing rocks of the Romagna have evidently been formed in lacustrine, or lake, deposits. The ancient streams flowing into these lakes were, in all probability, highly freighted with sulphide of calcium, which substance, being acted upon by the carbonic acid evolved from the deposits of molluscs and plants, abandoned and precipitated its sulphur, and was transformed into carbonate of lime, which latter rock forms the chief matrix of native sulphur. Judging by the very characteristic Stygian odours of burning brimstone which pervade the workings, one might, perhaps, be led to think that at some period or other old Lucifer himself, or some of his attendant bogies, might have had hand or foot in it, and that even now his Satanic majesty is not a very long way off. Be this as it may, however, by whatever means produced, the important fact remains that enormous quantities of sulphur do exist in the Cesena Company's seams, and within easy access.

The method adopted for the extraction of the mineral is the ordinary system of mining usually carried out, subject, of course, to such modifications as the circumstances may demand. Shafts (of which the Boratella section alone possesses four, the deepest being 1082 ft.) are sunk through the seam to the "marne" (marl), immediately underlying the sulphur; galleries, or levels, and headings are then extended upon the former, and the sulphur subsequently removed, pillars being left at intervals to support the roof. Exploratory galleries are kept well in advance of the headings, in some cases 300 or 400 ft., thus ensuring good ventilation, as well as proving the quantity and quality of reserves that may confidently be relied upon. The principal shaft is furnished with steam hoisting works, quite modern in their construction, the able management in this, as in many other respects, not only setting an admirable example to their neighbours, but reaping those immediate pecuniary advantages which always accrue when old-fashioned primitive notions and ideas are superseded by those which are modern, efficient, and practical. I was informed that the mere fact of a steam-engine being fixed for winding (pumping is not required, there being no water in this mine) was looked upon locally with an "uncanny" eye of dread and suspicion, whilst the terrible innovation of "pit guides" and "decked" cages now used created a distrust and *furore* which were at first quite startling to behold. It is gratifying to find, however, that ignorant and stupid prejudices even in this out-of-the-way corner of Italy are capable of being effectually uprooted and dispelled when firmly brought face to face with the mechanical and other scientific improvements of the present day.

The sulphur-yielding mineral, having been hoisted to surface, is at once delivered into a series of large circular open kilns, or "calcheroni," not unlike lime-kilns in their appearance. There are 55 of these kilns, so built, as regards position, as to command the various shafts, each kiln being capable of holding about 350 tons of mineral at a charge. All being in readiness, the mineral is ignited; the heat engendered by the combustion of one portion of the burning sulphur fuses and eliminates the remainder, whilst the molten brimstone, percolating through the mass, accumulates in the "basin" of the kiln, the base of which slopes forwards, from which it is "tapped" periodically, and cast into blocks of "black," or rather brick-coloured, sulphur, a slight trace of impurity still being present. The total cost of producing black sulphur, for which there is a great local demand, is 3*l.* per ton, including delivery. Its selling price is 5*l.* 5s., the amount of profit being 2*l.* 5s. per ton. During the process of calcination a very serious loss in sulphur occurs, amounting to 35 per cent. of the total yield, that portion which enters into actual ignition being converted into, and escaping into the air as fumes of, sulphurous acid. Now, inasmuch as all the mining costs have been paid upon it, any means that could be devised for utilising the escaping sulphurous acid would be most advantageous. Several methods have been tried in this direction, but hitherto with very limited practical success, anything gained in actual saving in sulphur having been lost in other ways. A partial success, was secured, however, in some comparatively recent attempts, by which a saving of about 2 per cent. of sulphur was effected. The problem is one well deserving attention, and I think its satisfactory solution need not be despaired of.

About one-seventh of the present production of the mines is sold as black sulphur, the remainder being converted into pure sulphur by sublimation and condensation in suitable iron retorts. During the process of refining there is a loss in sulphur equivalent to about 3 per cent., but the resulting brimstone is absolutely pure in quality, and sells readily at Cesena, being, in fact, eagerly sought after at an average price of 6*l.* 2s. 6d. per ton, leaving a profit of 1*l.* 17s. 6d. upon every ton of refined sulphur sold. During the year 1874, 61,936 tons of mineral were raised, which yielded 8166 tons of sulphur, leaving an all-round profit of 2*l.* per ton. The serious drawbacks to the production occasioned by the disastrous underground fire of 1872 in the old workings, and by the landslips of the same year, have at length been completely surmounted, extensive areas of productive mineral ground are being worked upon and developed in new ground, thus ensuring increased returns as well as securing corresponding reserves of mineral. The probable output for 1875 is estimated at 12,000 tons of sulphur, which there is every reason to hope and believe will be steadily increased until a yield of (say) from 15,000 to 20,000 tons per annum, equivalent to a profit of from 30,000*l.* to 40,000*l.*, is attained.

In conclusion, no one can go over the extensive properties owned by the Cesena Company and not fail to be struck with the energy and skill with which they are being prosecuted, and with their great intrinsic value. EDWARD GLEDHILL, Mining Engineer, &c.
Leeds Rock House Mines, near Shrewsbury, March 9.

ROCK DRILLS.

SIR,—Among the letters of your correspondents I notice a long communication from Messrs. McKean and Co., wherein I am accused of presumption in offering, for 85*l.*, an efficient air-compressor, with steam-engine complete, capable of driving a No. 2 size "Kainotomon" drill (which requires a pressure of from 40 lbs. to 45 lbs. per square inch). They idly suggest that perhaps a boiler and air-receiver are included in the 85*l.*, knowing as they must, if they be engineers, that this could not be; the suggestion, however, is only on a par with what follows it, and is no argument. I enclose herewith one of my rock-drill circulars, containing particulars, whereby you may see that the prices I mention are my regular prices. It may appear astonishing to makers whose rock-drills are expensive, and require high pressures to drive them, that other makers can afford to supply a thoroughly efficient rock drill for 75*l.*, and an air-compressor, with steam-engine complete, more than capable of driving it, for 85*l.* Such is, however, the case, and the "anguish, grief, and dolorous condolence" of which Messrs. McKean speak, would be more fittingly reserved for the "unfortunate purchasers" of their model. THOS. A. WARRINGTON.
King-street, Cheapside, March 10.

ROCK DRILLS.

SIR,—It is a true saying that "those who live in glass houses should not throw stones." If "Working Miner" had not so abused the knowledge of the working captains I should not have said a word by way of criticism on his ability to write, being, perhaps, as fully aware as he is that your columns should not be occupied for such purposes. No one has watched the progress made by rock-boring machines with greater interest than I have, and no one would be more happy to see their practical application to mining. We want something more than experiments. We want a drill suited to all kinds of rock, and to work in all sorts of places; but if for the present we could only have one that would *really* answer the purpose for sinking and driving it would be a grand step in the right direction.

It is not long since I attended the trial of one of these drills—I will not say whose—which miserably failed on that occasion to do anything, although it had every chance of success as far as the position of the machine, nature of the rock, &c., were concerned. The first thought that occurred to me was this—that if the practical engineer who had the conducting of the trial could not under those favourable circumstances work the machine, how in the name of common sense could an ordinary labouring man do so? The excuse made by the agent was, it is not the right sort of rock for the machine—a poor excuse indeed. We want a machine that will suit every kind of rock that may be met with, since we cannot change the nature of the rock.

Since the boring-machine has been so successful at the St. Gothard Tunnel, "A Working Miner" and many others seem to think that equal results can be obtained in shaft sinking and level driving. For my part I cannot see any analogy, and would like very much for your correspondents to state how 50 fms. could be driven in one month in an ordinary end, or 10 fms. be sunk in an engine-shaft in the same length of time. It is very easy to put the results down on paper, but the practical working of them out is another thing altogether: 50 fms. driving of an ordinary level will produce 750 tons of stuff—making 29 tons per day. Now, anyone who has any practical knowledge of cutting ground knows full well that not one-half of this can be accomplished where any boring is required. Sir George Denys basis his arguments upon the facts obtained by years of experience—facts which cannot be gainsaid by Messrs. McKean or anyone else. So true are those facts to my own experience—an experience obtained by many years practical mining, coupled with a close study of its theoretical principles—that I fully endorse all he says with regard to the capability of boring-machines. I believe with him that ground of 5*l.* per fathom can be driven at a cheaper rate by hand-labour, and almost as fast. In ground of that description no one can calculate on boring with advantage more than two holes before blasting, and oftimes not more than one. Well, by the time you have fixed your machinery two men will have gone a long way in boring the holes. The same time must be occupied, of course, in blasting after machinery as in blasting after hand boring, and then the same time occupied in clearing away the rubbish. If those advocates for the machines say that they will have extra hands, then the men who are working on the rock can do nothing in the meantime, for they must remember that not more than one man can be engaged in shovelling stuff from the forebreast of an end, and, however many may be employed, all must remain idle whilst that is being done. And, again, we must calculate on some time for working the loose ground which would be naturally caused. It is not economy to bore holes and waste powder when there is no need for it. One strong argument is the perfect ventilation obtained. This argument is not worth much, as no one would ever think of going to the expense of ventilating a level when it can be done on a much cheaper scale. People talk and write as though the same number of holes drilled with a machine would cut more ground than those bored by hand, and as though no time were needed in charging and blasting. To say that we shall fire by electricity to save time is all nonsense, for with the ordinary fuze holes will go off as soon as men can get out of the way. In the ordinary way of working the only advantage electricity has over the fuse is an occasional mis-fire, which may occur with the latter, or when two or more holes are required to be blasted at the same moment.

Where machines have the advantage over manual labour (if any advantage there is) it is in hard ground, such as the drivage of Sir George Denys. Here I will not deny that they have some advantage over hand labour where a long level has to be driven, and even then no such speed can be attained as some of your correspondents would have us believe. I am driving a level which requires 120 holes of such depths as the circumstances may require to advance 1 fathom. Now, we will suppose that 30 holes could be drilled per day—that is 10 holes for each 8 hours, which I consider is more than can be done taking into account all stoppages—making 180 holes per week, minus 20 for Saturday afternoon and night, this would show an advance of 5 fms. 2 ft. in four weeks—about double what we are doing by hand labour.

With regard to shaft sinking by machinery, I have no faith in it whatever. I hope that a grander success will attend the trial at Wheal Agar than it has elsewhere, where one man would bore more ground with a hammer than could be done with the machine. I shall be very anxious to learn through your columns how they succeed there.

Messrs. McKean and Co. make a great mistake in fancying that nothing new can be adopted in Cornwall unless it is the production of native talent; the fact is, Cornishmen are not to be made the dupes of every phantom that may make its appearance; they must first of all see the practical utility of a thing before wasting adventurers' money merely to gratify the wishes of inventors. What they say about the people in the bamboo jungles of South Africa sending for one of their machines is no argument in favour of their intelligence, or the ignorance and prejudice of the Cornish, as they would have us believe, but rather the contrary. Until they can prove that it was the result of *intelligent* conviction they might as well say that the Chinese are more enterprising because they have machines to say their prayers.

I have no prejudice against boring machines, but hope with your correspondent, "N. B.," that this year will be ever famous in the annals of Cornish mining as being the year when machinery was successfully applied to all systems of metalliferous mining. If such should be the case, there is no doubt that the same course will be adopted by— PEDN-AN-DREA.

ROCK DRILLS.

SIR,—I have read with interest the correspondence relative to Messrs. McKean and Co.'s 35*l.* drill model. I must say, as yet, I have seen no valid argument in its favour, nor do I myself see what satisfactory results are to be obtained from its use, excepting to show the action of the machine, which I should think might be explained at a less cost than 35*l.* In last week's Journal Messrs. McKean and Co. appear to doubt the efficiency of rock drills which are cheaper than their own. I can only say that some 18 months ago I bought a "Kainotomon" drill (which costs 75*l.*), which I think is capable of doing good service—indeed, far more than an expensive rock drill of a different type which was used under my superintendence at the Great Fron Fownog Mines. I think that, considering the amount of letters in the Journal with which we are favoured from Messrs. McKean and Co. and their friends, giving all sorts of particulars and prices, they should not be thin-skinned, and depreciate the machinery of other makers, simply because it happens to be cheaper than their own. I think this comparison of prices of air-compressors and rock drills is of considerable interest to us mining men, and I should be sorry to see the correspondence on this subject in your valuable Journal monopolised by one firm. WILLIAM WASLEY.
Fron Fownog, March 11.

THE CHANNEL TUNNEL.

SIR,—I have had my attention directed to two letters in the Journal of Feb. 6, each signed by "Engineers" (as they call themselves), professing opinions and ideas as to the future of an "International Tunnel," which has been my study for the past 22 years, and I can see clearly that they have lost themselves in their figures and calculations, which are very large, but which only require great care and attention for correct statements. I had hoped someone else would have worked and tried over the figures (as I have done), and given each an answer, as well as one to your correspondent of Feb. 27, signing "Investor." I have a dislike to reply to anonymous writers, for generally they are not worth answering; but I cannot let their opinions pass as truths when I know them to be fallacies, and, knowing your principles of fair hearing to both sides, I will be as brief as I can in my comments.

In the first-place, the stratum of gault clay, through which I purpose constructing my tunnels, will require machinery for the excavations, but no rock drills, as the rocks do not lay between upper and lower green sands, where the gault clay is found. Then comes the astounding estimate of "Engineer" (No. 1) for the excavation of a single arch tunnel at a cost of six millions sterling for the cutting and clearing only; and all the residue works, rails, drains, ventilation, &c., are to be *only* four millions more (making ten millions). I can see that he put an "0," or unit, too many; his excavation was meant for 600,000*l.* So much for his random calculations. Now for "Engineer" (No. 2). He assumes only a traffic revenue (I suppose net revenue) annually of 1,500,000*l.*, and for a single arch tunnel and its contracted space area—perhaps near the mark; but this capability of working and earning being doubled, by a double tunnel—one for passengers, and one for goods (separated)—it follows the revenue would be doubled also, and immense advantages and safety be gained. He then assumes 500 to 1 as the increase of passengers by tunnels instead of boats. There are now nearly half-a-million passengers to and from England and the Continent yearly. This, by his mode of reckoning, would run up to 250 millions; but here I cannot follow him—he goes too fast for me. I estimate seven millions of passengers by double tunnel; the *Daily News* thought 20 millions; the *Times* thought 40 millions—so you see I have kept my calculation of annual passengers within bounds of probability. The finish of "Engineer" (No. 2) is very cloudy and imaginative—in fact, too foggy for me to see what he is driving at by calculations and comparisons, which latter are ridiculous.

Now for a few remarks upon "Investor's" letter, who says "the chances of success with a tunnel in a commercial point of view are exceedingly remote." Most probably he is short-sighted. He then assumes that the return journey (meaning to and from)—say, at least 68 miles total—would be charged 3s., because London and Brighton make holiday trips to and from occasionally. He next calculates on only 1000 passengers to and from daily—(absurd, there are more than that at present, with boats, &c.) He then gets up to 7,300,000 passengers (a right datum), and jumps away at the Midland Company's goods revenue without the slightest ground for comparison. In conclusion, I beg to say there are plenty of capitalists able and willing to invest in the tunnel when the site is fairly chosen, the best design selected, and unhappy France quietly settled down to trade and commerce, instead of warfare. As to the forced passage through the tunnel, it is a bugbear to frighten children, not men.—*March* 10. W. AUSTIN, C.E.

CORNISH, GERMAN, AND AMERICAN MINE AGENTS.

SIR,—After what Mr. Thos. H. Allen has written in the Supplement to last week's Journal, especially his definition of "abstract" in the connection in which he employed it in his former letter, it is scarcely necessary that I should trouble you again on the subject, although it is to be hoped that the coming lexicographer will make a note of it, and also of "etymological reasoning," which I cannot in candour but admit is too much for my vocabulary, unless it may mean grammatical criticism, but in which case it would have no reference, as a glance at my letter of the former week will show that nothing of the kind was attempted. It rather appears to me as a confusion of etymology with metaphysics—a rather remarkable transposition—but then it may be in keeping with the times. But, be this as it may, I hold that licentiousness in the use of words may be just as pernicious in the long run as a similar latitude indulged in the abuse of men. If a person affects superiority, as Mr. Thos. H. Allen has done, we expect him to show it. The flippant manner in which he treated the matter in his first letter is sufficient evidence of the estimation with which he regarded himself, and the dire contempt in point of knowledge with which he regarded us. It would seem as if he considered it a legitimate exercise to indiscriminately slur the mine agents of his own county and country, and to lavish praises on others of whom he knows nothing. If he were to travel in the United States he would have an opportunity of seeing both American and German engineers, and if he knew aything of mining he might possibly discover that the contrast he has spoken of as subsisting between them and the English was wholly in favour of the latter. No American that I ever met with echoed his sentiments except from interested motives, and if he were in that country, and attempted to foist such an opinion upon them they would look furtively at him, and regard him as a counterfeit, or, as they would prefer to express it, "a bilk," and treat him as a person actuated by sinister motives. They know, and so do the Germans, that they cannot compare with us for practical mining, and as to "abstract

"principles," about which Mr. Thos. H. Allen talked, but knows nothing, they do not amount to much in connection with practical mining—they merely relate to the natural philosophy department thereof, and of which nothing can be known except by observing the intelligible features and effects which manifest themselves during the process and progress of development. Of course, I use the terms here in a conventional sense, as no principles can be considered apart from their attributes.

Perhaps it would be illiberal to conclude without expressing my admiration of the pertinence of his Latin quotations, and not to say of the first that if fortune always favoured the audacious, instead of, as it sometimes does, the enterprising bold, that he might not have much reason to complain of his lot in life. And of the second, which, by-the-bye, is partly composed of English, that if he believes it, that he had better stick to it, and leave the direction of labour to those who are esteemed better qualified to perform such duties.

EX NIHILO NIHIL FIT.

CORNISH AGENTS v. GERMAN AGENTS.

SIR,—In last week's Journal Mr. T. H. Allen attempts to justify and excuse some remarks contained in a previous letter, but his explanation leaves us in a state of darkness still more Stygian. He emphatically and unhesitatingly states that Cornish agents are inferior to German in the intellectual capacity required for the production of mining to a successful issue. It is evident, from the whole tenor of his letter, that he knows just as much about German characteristics and character as moderately well-educated people know about the inhabitants of the moons of Jupiter, and, at the same time, is singularly and remarkably unappreciative of the talents of his countrymen. The German nature is sluggishly slow, though plodding; studious, but retiring; whilst the Cornish are energetic, solid, and plucky. The Cornish agent is found all over the world—on the heights of the Andes, in the vales of California, in Japan, Australia, Russia; in fact, everywhere where mining is prosecuted is the Cornishman. Quick at resource and everywhere active in the discharge of his duty, unless spoiled by home-breeding, he is the authority on mining. Evidently your correspondent lacks "those principles which can make his judgment clear and accurate," or, if he possesses the necessary qualities, makes a very dull show of his inestimable possession. What those Latin truisms have to do with Cornish or German agents we do not see—"*Audaces fortuna juvat.*" Very true, but has naught to do with Mr. Allen's subject. Query—Were these quotations penned by way of display of the writer's classical knowledge? If so, they do not prove a great amount of ability on his part. Again, I utterly fail to perceive the point of his reasons for the German's superiority "because of consanguinity," because a subservient tool is wanted. How "because of consanguinity?" Perhaps Mr. Allen will kindly explain. His epistle should have been provided with foot notes to explain the "difficult passages."

But I will not occupy more of your valuable space in analysing the letter; perhaps, like a former one, it "was written in haste." Be this as it may, I do not hesitate in saying better it had never been written at all. Looking through the whole of Mr. Allen's correspondence on "Successful and Unsuccessful Mining," I do not see that he has given any very valuable information. Began in crooked, crusty criticism, he continues in wordy abuse, and concludes with total exhaustion and collapse. Not only does he start on wrong bases, but when put on the right track he fails to see it; and his letters have shown, above all things else, that he is entirely ignorant of affairs out of his own little world—cramped in idea and in judgment, deficient in knowledge of life, he, the pale and weak beacon-light, flickers till, worn out by its own exertion, it shall, still feebly, expire.—*March* 10. A CORNISHMAN.

MACHINERY AS APPLIED TO THE UNDERGROUND WORKING OF MINES.

SIR,—In my letter on the above subject last week I omitted to state one or two facts which may materially assist those who intend making a trial of boring machinery to form a correct judgment of the motive power. In many mines there is quite enough water flowing near the shaft mouth at surface to work a wheel powerful enough for the compressing of air in sufficient quantity; comparatively, the expense of a water-wheel would be very little. In cases where there is little water at surface there is often enough at the adit; in circumstances where the water there could not be well adapted there is often a sufficient fall of water to work a turbine-wheel—there may be a waterfall from the shallow to the deep adit, and this could very well be adapted to the compression of air by having an air-pipe for supply from surface and a delivery-pipe for the mine. Whilst believing that boring machines will be found of very great value in sinking and driving, I think they are not so easily adaptable in open stopes, where side holes have to be bored in a large high, wide stope. If the machine could be adapted to the working of these places it would be of great value, as it would favour the boring of deep holes, as in quarrying, which it much resembles in the method of working. Might not the machine be hung by a chain fastened from a bore, and so be worked with facility, although the blow would not be so effective?

In shafts, winzes, and ends the holes should not be bored more than 2 ft. to 2 ft. 6 in., as a greater depth would be useless, and three holes are quite enough to be bored in an end for a simultaneous blast. Everyone is looking with intense interest, I imagine, to the result of the experiment at Wheal Agar, as it is the first time lately that boring machines have been tried on the hardest granite rock in practice,—*March* 9. N. B.

CRENVER AND WHEAL ABRAHAM MINING COMPANY.

SIR,—It is pleasing to all who wish well to Cornwall, and to those who invest money in its mines, to learn that these mines, after a long period of adversity and many difficulties, are apparently about to become self-sustaining, and I hope something more. I saw an agent who is thoroughly conversant with their condition, who assured me a few days ago that such was the case.

The company deserve great praise for their perseverance in up-hill work. The importance of such mines to a parish like Crowan is considerable, because they are almost the only mines in the neighbourhood now at work.—*Truro, March* 8. R. SYMONS.

NEW ROSEWARNE MINING COMPANY.

SIR,—This mine is in Gwinear, and the only one now at work in that parish. A few days ago I heard a report that a lode of rich copper ore 4 ft. in width was cut in the 54 fm. level. Two days ago another informant confirmed that agreeable intelligence—I am glad for all concerned. The mine has been for some months worked on suffrance—*i.e.*, from meeting to meeting. "We will try it three months longer" was the resolution passed at the last regular meeting, about two or three months ago, and at a special meeting held on Wednesday last the company, of course, resolved to go on.

March 8. R. SYMONS.

RAVENGLASS AND ESKDALE RAILWAY.

SIR,—The advertisement in last week's Journal gives a piece of information which will afford satisfaction to many of your readers.—1. It says that the railway capital (24,000*l.*) has been fully subscribed, and that a sum of only 8000*l.* of loan capital is required to complete the works. For this sum the directors (of whom the Earl of Devon is chairman) are willing to pay 6 per cent. per annum. Such a small sum, at such interest, and so well secured, will, no doubt, be readily supplied.—2. It says that the line (7½ miles in length) will be open for mineral traffic in about a month's time, and shortly after for passenger traffic. We know that the necessity for cheap transit of the Eskdale ores originated the railway, but as a passenger line it will be found very convenient for residents in and near the Vale, because it will not merely convey them to Ravenglass on the Furness Railway, but to the railway system of the whole country.

I am of opinion that the traffic from the Eskdale Mine alone is sufficient to maintain the railway, independently of any passenger traffic; but I do not question that the construction of the line will stimulate searches after minerals further up the valley, where iron lodes are said to have been seen. Meanwhile, there are the lodes in South Eskdale, which have been waiting, so to speak, the opening of this railway, that they may be carried to the smelter. Whether Mr. Harvey, the lessee, has prepared a branch from the railway to the base of the mountain, out of which his lodes crop, I have not heard, but I take it for granted that he has either done so or is stirring in the matter. The railway may be said to have opened the door for the egress of the vast mineral resources of the valley. Without such a means of transit, with a charge of 8s. per ton for cartage, the mines of iron could not be expected to prosper; but with a railway all the mines in the valley are, I think, sure to be prosperous when fairly developed. I know Eskdale Mine and South Eskdale, and speak from knowledge. The setts in Cumberland are very extensive, not small, like those in Cornwall generally are. Eskdale contains about 2000 acres, and South Eskdale about 10,000 acres. There is good reason for believing that the railway traffic will well repay the sharholders in the company. R. SYMONS.

Truro, March 9.

BIRMINGHAM AND BLAKELEY HALL COLLIERY COMPANY.

SIR,—As you have correspondents who, I presume, know much about this undertaking, its managers, and its management, I, for one, should feel delighted to hear what has been done with the cash, and who has had it? I have a strong idea that all is not right, and this sort of feeling is growing stronger in a lot of us. A. Z.

Birmingham, March 10.

SUCCESSFUL AND UNSUCCESSFUL MINING.

SIR,—This subject has been already so ably handled by your correspondents in the South, that an ordinary individual's remarks on the matter can only cut a very sorry figure indeed by the side of such learned productions. However, as you are always indulgent and willing to publish sound views from whoever they may emanate, I will, with your kind permission, say a word or two on this subject, which is of such great interest and importance to this country. The theme chiefly harped upon is the incompetency of mine agents, but, as a rule, mine agents are intelligent, sober, and deserving men, and most of them are valuable in their legitimate spheres. What is generally understood, I believe, by a practical mine agent is a man who understands practical mining thoroughly, but knows nothing of the theory of mining; such being the case, I look upon the practical mine agent as a highly valuable man in his proper position, but, so far as the management of a mine is concerned, he only stands upon one leg. There is also another man who has but one leg to stand upon in the management of mines—I refer to the one who knows nothing of practical mining, but has acquired all the theory of the matter; therefore, in order to be successful in mining operations, we must find a man who stands firmly upon two legs, and can use them energetically and freely; and who will such a one be? Why, of course, the man who possesses the qualifications of both the practical and theoretical man. I do not condemn either of the one-legged men, but in all reason and conscience they can only hold a subordinate position to the two-legged man. Every agent entrusted with the management of metalliferous mines should be perfectly acquainted with practical mining in all its branches; he should also be capable of assaying ores of whatever description, and dialling and planning accurately, in short, he should be both a practical and scientific miner, and when such men are selected to be at the head of mining establishments we need have little fear for successful mining; but whilst either of the above one-legged miners are entrusted with the management of mines we cannot but be saddened with the sickening sight of many and varied ruinous blunders.

Barrow-in-Furness, Lancashire, March 9. UN INGLESE.

NORTH TANKERVILLE MINING COMPANY.

SIR,—I was glad to see by your correspondent in last week's Journal that North Tankerville sett is taken up again. The sett is well situated, being surrounded by the richest mines in this district. Your correspondent says, if the reports of the former agents are to be relied on, there is a good mine, and only requires developing to show that the reports are well founded, and that a profitable mine for lead and barytes will be the result of further prosecution. I should say the reports of few agents were made according to the indications at surface, and also so far as the last company proved the lode. This sett is almost, I might say altegether, virgin ground, and yet out of the small quantity of ground worked thousands of tons of barytes have been raised and sold from there, and many tons of lead ore. This lode (the Spar lode) was considered to be a continuation of the celebrated Snailbeach lode, having the same bearing and underlie, but supposing this cannot be proved the indications both at surface and below are of such a character that anyone conversant with the county would say it is worth a trial yet, so that the parties recommending the late company to commence operations might find in a short time their predictions realised, and a good mine be the result of further trial. If we look at a great many mines in England, and some in this district, we shall find that a large proportion of our now rich mines were worked and stopped, and again resumed. I could mention the names of the mines here that have been in this dilemma, but by having sufficient capital put down they have been resumed, and are now in a highly productive and profitable state. I presume the North Tankerville Mine would not have been stopped by the late company if more capital could have been raised, but failing to do this they had no other alternative. I could mention many mines that were pronounced by mine agents whose judgment we should not question that were condemned, and the ground lay idle for years. At last someone recommended parties having money to speculate to try again, and the results, as you no doubt are aware, in many instances have been rich mines. I trust this will be the case with North Tankerville, and that the present party will have a lasting and profitable mine. There are several pieces of ground in this district well worthy the attention of capitalists, besides the mines now working, of which I shall say something about in future letters.—*Shrewsbury, March* 9. CORRESPONDENT.

NEW FOWEY CONSOLS.

SIR,—For some weeks past my attention has been directed to the low price at which shares in this mine have been cited in the *Mining Journal*, and in order to test the accuracy of such quotations, I made a personal examination of the books of the company, and thereby found the amounts so quoted purely fictitious, and that the price at which shares are and have been selling for some time past to be from 30s. to 40s. each. This fact I consider should be made known through your columns, as no doubt a great number of your readers, as well as myself, are deeply interested in the company, and do not wish to be led away by the misrepresentations of those evidently desiring to gain, but have nothing to lose.

March 11. SHAREHOLDER.

JAVALI MINE.

SIR,—The "Puzzled Shareholder" evidently fell into the error of supposing the capital paid up was 4*l.* per share instead of 2*l.*, yet his letter has had one good effect—it has roused the public from a condition of unaccountable apathy. At the same time, comparisons have been drawn which are utterly useless. Anyone in the last report may read that Capt. Sohns' estimate of our mine soars above all ventures south of Mexico, and that he values the shares as equal to those of the St. John del Rey. According to that estimate the value of them is now nearly 6*l.* each. Your Glasgow correspondent has most usefully informed us by a carefully prepared statement. Let us hope the shares which have lately changed hands have reached those by whom they will be tightly held, and who will give assistance to those in office in working the valuable property. On re-perusing the last report, I see the manager wished to have coolies, stating he could easily import them from Jamaica. We may depend upon it that Capt. Sohns has some good reason for this; one very important one being that he would be independent of the pious natives, who cease from work every saint's day. There were only four Sundays and one Christmas Day in December, yet they were idle four other days. These should have produced us profit to the amount of 164*l.*, in addition to the 900*l.* obtained. PICT.

Belfast, March 8.

[For remainder of Original Correspondence, see to-day's Journal.]

MANUFACTURE OF TIN-PLATES.—The invention of Mr. T. W. FLOWER, of Melyn Tin-Plate Works, Neath, relates to improvements in pickling iron plates, and in coating them with tin or other metal, and consists in packing the sheets to be operated upon in racks or grates, so constructed that, while the sheets pack very close to each other, they cannot come into actual contact, and that when plunged mechanically into a regulated succession of baths the contents of each bath will act equally upon every part of each plate.

UNITING GLASS TO IRON.—The invention of Mr. J. HARTLEY, of Ormskirk, consists in the uniting of glass to iron and other materials by means of a preparation named glazune, in order to render glass available for various general useful purposes in which it has not hitherto been employed, by a process of supplying it with uniform attachment to and support by the iron and other materials to which it may be united, and thereby reducing its liability to fracture when subject to pressure and concussion, and entirely removing its liability to conchoidal fracture.

PERPETUAL MOTION.—According to the invention of Mr. J. LÜDEKE, of Camden Town, a centrifugal pump is applied to a reservoir of water in which its vertical tube rotates in pivoted bearings, its horizontal arms being surrounded by a turbine whose axis is in the same line as, but independent of, that of the pump; the water raised and ejected by the pump against the turbine falls into a circular chamber enclosing both, and is conducted to an overshot water-wheel or other motor, for the supply of surplus power and other purposes. The turbine gives its power back to the pump by aid of band and pulley gearing, and the overshot-wheel may be similarly connected to the pump. An improved turbine is formed by an annular plate with a flanged border, in which recesses or apertures are cut to conduct the liquid by radial ducts to a central discharge; or the turbines may be dispensed with, and an inverted conical cylinder may be substituted as a fixture on standards, the water being ejected and elevated over its edges to an external channel, and then to a water-wheel, or other motor; or the cylinder may be true and provided with internal curvilinear tubes or channels for conducting the water. Mercury may be used in some cases in the motive-power apparatus, if desired.

OBTAINING AMMONIA FROM WASTE PRODUCTS.—The invention of Mr. J. LAIR, of Paris, is especially applicable for treating waste products, the refuse heat and deposits being utilised, and offensive smells removed; pumps, heaters, and separating vessels are combined with the distilling column into which the liquid whence the ammonia to be extracted is driven after passing through tubular heaters heated by the exhaust liquor from the distilling column. Steam and milk of lime are introduced into the distilling column, the liquid from which passes into a separator fitted with an internal tube, at the bottom of which the deposits are left; the ammoniacal vapours pass into the sulphuric acid vessels through tubes heated by steam-pipes. To prevent offensive vapours the gases are carried under the generator furnace. The pumps are regulated so as to feed the liquid and milk of lime in proper portions.

PHOSPHOR BRONZE, AND ITS USES.

The constantly increasing competition in every branch of industry, and the very general introduction of machine tools, has necessitated the utmost care in the selection of metal for bearings and certain other portions of machinery, in order to avoid the annoyance and inconvenience of frequent stoppages for repairs and re-adjustments, so that for some years past the production of improved alloys, combining toughness and hardness in the degrees requisite to ensure durability, according to the particular purpose to which it may be applied, has received a large amount of attention from inventors, one by one of whom have had to give way to a more successful rival. At the present moment phosphor bronze seems to be the best alloy in the market, and although it is, perhaps, unreasonable to suppose that perfection has been reached, it cannot be doubted that in point of durability it leaves little to be desired. It must not be forgotten, however, that its high quality is in a great measure due to the extreme care taken with its manufacture, so that other inventors may hereafter discover that by giving equal attention to the manipulation of other alloys correspondingly good results may be obtained, with even greater economy. With regard to first cost, the price of phosphor bronze is from 30 to 40 per cent. higher than that of gunmetal composed of about four parts copper with one part tin, but, placed in the very trying position of a railway carriage bearing, it has been found by actual and long-continued trial that 1*l.* worth of phosphor bronze will outwear 4*l.* worth of the gunmetal, so that the economy in favour of the former is enormous.

The extensive application of phosphor bronze is due to the circumstance that it can be made more ductile than copper, as tough as wrought-iron, or as hard as steel, according to the purpose for which it is required, not the least advantage being that these properties are given to it in the process of manufacture, and that once given they are permanently retained, although the mass may be re-melted and re-fashioned by the consumer. It is claimed that its homogeneity is complete, and its grain is as fine as the best cast-steel. The phosphor bronze alloys made for rolling, drawing, or embossing, will stretch more than copper or any of its ordinary compounds. Plates have been reduced by a single cold rolling to one-fifth of their thickness, the edges remaining perfectly sound, and without cracks. The great advantage of phosphor bronze for bearings is that, in addition to wearing well, it does not readily become heated, the general result being that they wear five times as long as ordinary bronze. For locomotive and boiler tubes phosphor bronze has proved much superior to copper or brass, owing to its greater hardness or strength. Used as bell metal, the phosphor bronze gives a clearer and louder ring than any other compound; and, as the clappers can be made heavier, a greater volume of sound can be produced without the risk of cracking the bells. The new alloy has likewise been successfully employed for wire, its great toughness and immense strength, combined with its non-liability to rust, making it particularly applicable for pit-ropes, standing rigging, &c.

In connection with the use of phosphor bronze wire-rope in collieries, the report of Prof. Spangenberg, of the Berlin Academy of Arts and Sciences, upon some systematic experiments made by him, is of considerable interest, as establishing the enormous strength of the alloy. In testing three bars of forged phosphor bronze which were expected to be of extreme toughness, the trials he made, however, showed a more moderate and unequal resistance than the unforged phosphor bronze; but, on the other hand, produced a most unexpected and gratifying result by its immense resistance to torsion. The first bar which he tried resisted without rupture 3,871,500 bends right and left, at a strain of 14 tons per square inch; 1,996,900 bends ditto, 15 tons per square inch; and 1,590,000 ditto, 16 tons per square inch=7,458,400 bends to the right, and the same number to the left. As the springs of the machine were too weak to increase the strain, Prof. Spangenberg was compelled to substitute a slighter bar, which has up to the present moment resisted as bravely as its predecessor, having until now withstood without rupture 500,000 bends right and left, at a strain of 15 tons per square inch; 600,000 ditto, 16 tons per square inch; 400,000 ditto, 17 tons per square inch; 494,000 ditto, 18 tons per square inch=1,994,000 bends to the right, and the same number to the left. As soon as the special machine is repaired the Professor will continue the experiments—firstly, by completing the 2,000,000 bends, and afterwards increasing the strain to 19 tons. After each 500,000 bends right and left he proposes to increase the strain up to 20 tons, and so on, until a rupture is effected.

As the value of experiments of this kind can only be judged of by the general reader by comparing the results obtained in similar experiments with other metals, Prof. Spangenberg mentions that a bar of Westphalian iron broke after 215,653 bends in each direction, at a strain of 12 tons per square inch, and that in Wöhler's experiments with a bar of Krupp's cast-steel taken from an axle the number of bends which it resisted was 273,800, at 10 tons strain per square inch; 253,800 bends, at 11 tons strain per square inch; 291,100 bends, at 12 tons per square inch; 251,850 bends, at 13 tons strain per square inch; 187,500 bends, at 14 tons strain per square inch=1,258,050 bends in each direction. This bar, therefore, at an average strain of 12 tons, resisted 1,250,000 bends; another, at a strain of 13 tons, about 1,000,000 bends; whilst, according to his showing above, one bar of phosphor bronze resisted 7,500,000 bends, at an average strain of 18½ tons, and is not yet broken; and the second and slighter bar has up to the present resisted without rupture nearly 2,000,000 bends, at an average strain of 16½ tons. As soon as the second trial is completed the Professor will commence a third, and then several other trials, to make sure that the successful results described above are not in any way attributable to accident.

The mining and metallurgical industries in which the readers of the *Mining Journal* are more immediately interested are likely to take a prominent position among the consumers of phosphor bronze, for already the new alloy has been advantageously employed for blast-furnace tuyeres, and will, doubtless, come into favour hereafter for pit ropes, tamping bars, prickers, and many mining tools which hitherto have been necessarily made of steel, though much danger has attended their use. It appears that tuyeres for blast-furnaces, &c., made of phosphor bronze have given great satisfaction in England and Wales, and particularly in France and Germany, where they are in general use. They are known to be much more durable than tuyeres made of any other metal, some having after three years' service been found in a perfectly good condition. For tamping bars phosphor bronze would appear to be invaluable, since they may be made as hard as steel, yet have the same advantage as copper in not emitting sparks. The application of phosphor bronze in the manufacture of rock-drills was mentioned at the recent meeting of the Phosphor Bronze Company, and there really appear to be few cases in which really hard work is required where it would not prove economic.

EPPS'S COCOA—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame."—*Civil Service Gazette.*

Meetings of Public Companies.

TECOMA SILVER MINING COMPANY.

A meeting of shareholders was held at the offices, Palmerston Buildings, on Monday,—Mr. ADLEY in the chair.

Mr. HARRISON (secretary) read the notice convening the meeting.

The CHAIRMAN said—Gentlemen: The lease of your properties to Mr. Gordon, as you are aware, has been completed, and arrangements have also been entered into with Mr. Davis to surrender your mines, in order to enable us to hand them over to Mr. Gordon on the 1st proximo. The arrangements with Mr. Davis are subject to a mutual reservation on both sides—that the terms agreed to are to be ratified by the shareholders, and that a settlement is made between your sister company—the Flagstaff—and Mr. Davis. The latter condition we have the pleasure of announcing to you has now become obsolete, because the terms for a settlement with the Flagstaff Company have been agreed to, and signed. It now, therefore, only remains for you to-day to endorse the agreement that has been provisionally entered into with Mr. Davis by us as trustees on your behalf, and to authorise us to go on and complete the transactions. Since our circular has been issued we have received further advices from Mr. Harris, with the original of the lease as executed to Mr. Gordon. The substance of the conditions laid down for Mr. Gordon to fulfil are that he is to pay down $25,000 in gold (5000*l.*) before possession is given up to him, and to pay the rents quarterly in advance. If such advance payment be at any time seven days in arrear we have the power to eject the lessee summarily, without recourse to courts of law, under a penalty of a fine of $500 in gold (100*l.*) per diem, to be paid in case of Mr. Gordon holding over. Two substantial securities are also to be provided for $50,000 in gold (10,000*l.*) as a guarantee for the proper and efficient working of the mines. We cannot do better than read to you Mr. Harris's letters, which describe the negociations in detail, and at the same time are succinct and to the point.—1. Mr. Harris's letter to board Feb. 19; 2, ditto to Wadsworth, of Wells, Fargo, and Co., Feb. 11; 3, ditto, to J. Gordon, Feb. 11:—

TO THE DIRECTORS OF THE TECOMA SILVER MINING COMPANY.

124, *Fifth Avenue, New York, Feb.* 19.—I have the honour to inform you that on Feb. 11, acting on your instructions, I executed a lease of the mines, furnaces, &c., of your company to Mr. Joseph Gordon, of Salt Lake City. The lease contains all the usual covenants, and also provisions which will, I believe, protect the company's interest during the term. I have endeavoured by arbitration clauses to deprive as far as possible the courts of their jurisdiction, for in the present demoralised state of the courts of law of the Utah Territory litigation is to be deprecated. In case of disputes arising as to the proper and miner-like working of the mine, they are to be submitted to the arbitration of two mining experts, who, in case of disagreement, are to choose an umpire, whose duties shall be not only to assess damages, but also to direct Mr. Gordon in what manner the mine shall be worked. Neither the mines or the furnaces are to be sub-let or sub-leased. The annual rent is to be paid in four equal instalments of $25,000 in gold each, to be paid in advance, and if the lessee be seven days in arrear the lessors may eject him and his employees summarily, and without resort to courts of law, and a penalty of $500 a day is to be paid by him in case of his holding over. The lessee undertakes to provide two sureties, who are to join with him in a joint and several bond for $50,000 gold as a guarantee for the full performance by him of all the covenants and conditions of the lease (except the payment of the rent). I have directed Mr. Henry Wadsworth manager of Wells, Fargo, and Co., bankers, of Salt Lake City and San Francisco) to see that the persons offering as sureties are thoroughly responsible parties. This bond will be executed in San Francisco (as the sureties are San Francisco people), and it, therefore, became necessary for me to adopt this course (employing Mr. Wadsworth) in order to ensure the protection of your interests, as it was impossible for me—a stranger—to find out the financial standing of guarantees residing in San Francisco. For further particulars on this point I refer you to my letter marked "A" for the instructions I have left with Mr. Wadsworth. On payment of the first instalment of $25,000 gold, and on the execution of the above bond to Mr. Wadsworth's satisfaction, possession is to be given to Mr. Gordon on or before April 1, 1875. I had some difficulty in inducing Mr. Gordon to keep his offer open until this date in order that you might have time to complete your arrangements in London. I endeavoured to make his guarantees cover the rent, as well as the other covenants of the lease. This Mr. Gordon would not consent to, objecting, first, that as the rent was to be paid in advance such a guarantee was unnecessary, and, second, that his offer only undertook to provide guarantees for the proper working of the mine. I was, therefore, compelled to abandon this standpoint lest by insisting I should imperil the execution of the lease altogether. In my letter marked "B," herewith enclosed you, addressed to Mr. Gordon, you will find that I have told him distinctly what conditions are to be performed by him precedent to his entering on possession, and how I should require him to perform them. I also had some little difficulty in inducing Mr. Gordon to consent to pay all the instalments of rent in advance, but telegraphic instructions from your solicitor—Mr. Snell—required me to insist on this point, although it was at variance with the offer contained in Mr. Gordon's letter to you. But the greatest delay in the execution of the lease arose from the fact that I was unable (owing to Mr. Patrick's refusing to put me in possession of the mine until he received authority both from you and Mr. Erwin Davis to do so) to give immediate possession to the lessee, and, as I have stated before, under the terms of the lease the lessee is to be put in possession on or before April 1 of this year, otherwise the lease to be void. The lease is for a term of three years, at the yearly rental of $100,000 gold a-year, with the option on Mr. Gordon's part of extending the term for a further period of two years at an annual rental of $150,000 gold. I have omitted to mention that I pressed Mr. Gordon to pay a royalty to the company, in addition to the rent, for every ton of ore extracted in any year above 30,000 tons. This Mr. Gordon declined to accede to. I strongly recommend you to appoint some agent (to reside on the spot) to look after your interest in the mine, to receive the rent, and to inspect the workings constantly. I have no doubt that a thoroughly honest and capable man can be found to undertake these duties at a moderate salary (say, 300*l.* per annum), and if you have not already chosen anyone to act for you, I beg to mention the name of Mr. S. G. Suckett, who has for three years been engaged in the mining and assaying business at Georgetown, Colorado. From all I hear, I believe he is a gentleman in whom you may place confidence, and I think you would be acting wisely in offering him this appointment. I beg to forward herewith (1) the lease as executed in duplicate, and (2) the account of my expenses. Hoping that my conduct in this matter will meet with your approval, I have the honour to remain, gentlemen, yours faithfully,—W. A. HARRIS.

(Enclosure "A.")

Townsend House, Salt Lake City, Feb. 11.—Acting for and on behalf of the Tecoma Silver Mining Company (Limited), of London, England, I have this day executed a lease by and from the said company to Mr. Joseph Gordon, of this city, of the mines and furnaces belonging to the said company in Utah Territory. One of the clauses of the lease requires that the first instalment, $25,000 gold, should be paid by said Gordon to the said company, or their agents in Salt Lake City, before the said company put Mr. Gordon in possession of their mines, furnaces, &c., and another clause requires that Gordon shall provide two sureties (responsible parties), who shall join with him in a bond of $50,000 gold, as a guarantee for the due performance by Gordon of all the conditions and covenants contained in the said lease, which bond he is also to give to the company's agent before getting possessing of the mine. I have, therefore, requested Mr. Nelson Patrick, who is at present acting for the company, to hand over possession of the mine to you, and I have to request you will take over formal possession of the mine, and hold it for and on behalf of the said Tecoma Company I have requested Mr. Gordon to hand you, with as little delay as possible, the bond duly executed by him and his two sureties, and I have to request you to make such enquiries as to satisfy yourself that the joint and several bond is worth $50,000, in gold, and upon receiving this bond, and being duly satisfied of the solvency to the above extent of the sureties therein named, and on receiving the first quarterly instalment of $25,000, gold, on account of rent of said mine, you will then hand over possession thereof to Mr. Gordon, in accordance with the terms of the lease. I have further to request that you will telegraph me at 124, Fifth Avenue, New York, the moment you give up possession as afore aid of the mine to Mr. Gordon, in order that I may apprise the directors of the fact, and you will also remit to me in New York, by draft or otherwise, the said sum of $25,000, and the bond by mail for remittance to London, less your charges for collection.—W. A. HARRIS.

(Enclosure "B.") RE-LEASE OF TECOMA MINING COMPANY.

Townsend House, Salt Lake City, Feb. 11.—In reference to the bond which, under the agreement in the lease executed by us to-day, you are to give with two sureties in the sum of $50,000, gold coin, jointly and severally, I have requested Mr. H. Wadsworth, of Messrs. Wells, Fargo, and Co., of this city, to satisfy himself of the pecuniary status of your sureties, and I have also requested him to have the bond properly executed. You will, therefore, be good enough to direct your two sureties (whoever they may be) to sign the said bond at the office of Wells, Fargo, and Co., Montgomery street, San Francisco, and in their presence. I have also requested Mr. Patrick to give up possession of the mine, works, and furnaces, &c., to Mr. Wadsworth, of this city, and I have instructed Mr. Wadsworth to hold the same until you have paid into Messrs. Wells, Fargo, and Co.'s bank the first instalment of $25,000, gold (according to the provisions of the lease), and have also deposited with them, or until they have received, the bond above referred to. Upon your doing this, I have instructed Mr. Wadsworth to put you in possession of the mine, furnaces, &c., with as little delay as possible.—W. A. HARRIS.

You will perceive that Mr. Harris has carried out our instructions with an ability and completeness that reflects upon him the highest credit. There is one point in the lease, however, which is not quite in accordance with Mr. Harris's telegram, nor the original offer, the lease having been concluded for a fixed period of three years instead of two, as at first named. We, therefore, at once cabled Mr. Harris for an explanation, and received the following reply:—"Under my instructions these terms best. Gordon positively refused extra rent third year—alternative, no lease." We assume, therefore, that the modification has arisen from our insisting on substantial guarantees being given, and the rent paid quarterly in advance. The lease with Mr. Gordon being now a matter of fact, the next step is to obtain the surrender of your mines from Mr. Davis. This is a subject which has given your board much anxious concern; because, in the face of a favourable offer you had a check upon your actions which might create an unpleasant difficulty at any moment. It was necessary, therefore, to get rid of this incubus. We need hardly add that the negociations that ensued were of a somewhat anxious and difficult nature, and that during an exhaustive discussion with Mr. Davis of two days, no point on your part was lost sight of, and no argument overlooked. The basis of the settlement that has been provisionally effected is, as you are informed, as follows:—Mr. Davis will deliver up your property on condition that he is repaid the moneys alleged to have been expended by him in liquidating your debts, redeeming and repairing furnaces, and developing the mines; that further Chancery proceedings against all parties are to be stayed under the stipulations that have been laid before you. The total amount claimed by Mr. Davis is 12,000*l.*, but he will reduce this to a lump sum of 10,000*l.*, subject to verification of accounts. An agreement with Mr. Davis has been signed to the above effect, and as regards the old directors, we have received the following letter:—

TECOMA SILVER MINING COMPANY.

30, *Craven-street, Charing Cross, London, March* 3.—We have taken the earliest opportunity of seeing our clients on the subject of the special report issued by the directors of the above company, dated the 27th ult. While they view with much satisfaction that there is a prospect of the company being at once put in a paying position, they cannot (as you may obviously understand) assent to anything which would involve an admission on their part that they had acted wrongfully. The terms suggested, so far as they are concerned, would amount to such an admission, and were concluded without reference to them. At the same time our clients are quite willing to give any assistance in their power to further the interest of the shareholders.—RADCLIFFE, CATOR, AND MARTINEAU.

It is quite clear that the old directors must see that their wisest course is to coalesce in an arrangement so manifestly beneficial to their interest, and it will be advisable for you to leave this in the hands of the board to settle. The terms arranged, though not so satisfactory as might have been desired, were the only ones obtainable under the circumstances. Mr. Davis maintained that but for the money he had risked in saving your mines from seizure, and proving their real value, you never would have had the offer from Mr. Gordon. The mines had turned out more valuable than were at first anticipated, there being at present a quantity of ore accumulated, and that, therefore, the shareholders of the company could well afford to refund him what he had risked on their account—in fact, we found it impossible to get better terms, and we are convinced you will get nothing better. In considering this question you must bear in mind what we have frequently told you, and cannot too often repeat, that had you in the first instance supplied us with the 20,000*l.* originally asked for we should most certainly have now laid before you a very different story, and, it need hardly be added, a much more favourable statement. But you well know our several appeals for funds have not been met in the spirit we anticipated. Even had you responded liberally to our last appeal for 10,000*l.* of debentures we should have been placed on such a vantage ground as would have enabled us to have insisted upon better terms being conceded. But as an overwhelming majority of the shareholders held aloof from supporting us we were practically at the mercy of Mr. Davis. It must be self-evident to you that to place us here in the honourable position of guardians of your interests, to direct us to carry out a protective and costly policy, and yet at the same time not to provide us liberally with the necessary means for so doing, is merely (you will pardon the observation, but facts are stubborn things) to stultify our position, and virtually negative your resolutions. Gladly as we have devoted, and will continue to devote, our time and labour to protect your interests, we cannot accomplish impossibilities. We cannot fight without greater support than the nebulous exhalations of indignant eloquence. Beset with difficulties, we have had to combat with still greater difficulties, such as few men would wish to meet with in the ordinary course of business, and fewer still would desire ever to encounter. Review briefly the chief events of the past year, and what is the retrospect? On the one side, your property was under the control of those who had you in their power so long as their claims remained unsatisfied. They could have thwarted your plans, probably, with disaster, or, at all events, they could have harassed you with such legal delays and embarrassments as would have jeopardised your existence. You had also expensive lawsuits dragging their slow length along, while your property was yielding to you nothing in return to compensate for the continual drain upon your purses. On the other side, you had your late servants, the only people in this country who had visited your mines, who knew their real value and prospective capabilities, taking advantage of your extremity in the insane idea of aggrandising themselves, as they foolishly thought, on your ruin. In the midst of all you had to carry on an unequal conflict with a diminishing exchequer, that required to be constantly replenished. Yet your inflexibility has triumphed over every obstacle, and we believe that what has been done is the best. It is, in truth, the best your means afforded, and there is a proverb that tells us "angels could no more." You have now steered safely past the vortex of your dangers. You are in tranquil waters, with plain sailing and a brighter prospect dawning before you. Will you accept that position, or will you venture rashly back into a troubled sea of darkness and uncertainty, with the chances of shipwreck, because—mark the words—without ample funds, which are the life buoys and life boats of your salvation, you will find little comfort in the dismal chaos out of which you have emerged, beyond the risks of shipwreck on the sunken rocks of litigation.

Mr. GRAY asked for what amount had proceedings been instituted against Mr. Davis and the late directors?——Mr. SNELL (the solicitor) explained it was a suit to recover the capital, which involved the giving up of the property. It was impossible to say what their claims were against the late directors.

Mr. GRAY said the shareholders could but accept the arrangement.——Mr. TOWNE said there was no alternative—their position compelled them to endorse the views of the Chairman. He then moved that the terms of the arrangement entered into with Mr. Davis be ratified, and that the directors be authorised to carry out and complete the same, with such modifications thereof as may be best for the interests of the company, and such settlement with the late directors as the board may think advisable.

Mr. ST. STEPHENS said, as he had been referred to by the Chairman, it was only right the shareholders should be made cognisant of the difficulties in which he had been placed. He had not been able to obtain the money due to him for his salary, and had been compelled to commence proceedings.——The CHAIRMAN said the speaker was quite out of order, the question being *sub judice*.——Mr ST. STEPHENS said he much regretted that the Chairman should have presumed to stigmatise any action of the officers of the company as insane.

The CHAIRMAN, replying to Mr. Gray, said that actions were louder than words, and the practical value of his words would have been shown had he come forward and subscribed for the debentures, in order to fight the late directors. Words were cheap, and the board had not found money quite so readily.

Mr. TOWNE asked if the proposed arrangement was not contingent with the Flagstaff matter also being settled?——Mr. SNELL believed that no difficulty would arise from that cause.

A SHAREHOLDER said the Chairman had informed them the Flagstaff difficulty had been arranged.——Mr. SNELL said it had been—subject to a certain agreement and the obtaining a report upon the mine from one of the directors, but that would not affect the Tecoma.

A SHAREHOLDER asked what amount was due from the Flagstaff to the Tecoma Company?——Mr. SNELL said a certain amount was advanced by the Tecoma to the Flagstaff Company, but the amount owing had not yet been ascertained, as the books had only just arrived from Utah. If there was anything due the Flagstaff Company would, of course, have to pay.

Mr. WHITE (a director) said if they could pay Mr. Davis in cash the shareholders would receive the interest upon the debentures instead of Mr. Davis.

Mr. GREY asked if the works of the company would be totally distinct from the Last Chance and Flagstaff?——The CHAIRMAN said there was no doubt they must be so.

Mr. GENT then proposed that the lease from the company be approved, and that the directors be requested to use their utmost endeavours to carry out the provisions of the same.——Mr. GREY seconded the proposition, which was put and carried.

It was also resolved that in consequence of the accounts from Utah not having been received the meeting stands adjourned *sine die*.

The CHAIRMAN said it was the intention of the board to call a meeting as soon as the accounts were received, and they hoped then to have something more substantial to offer to the shareholders, and to take into consideration what should be done with the money in hand.

A unanimous vote of thanks was passed to the Chairman for the praiseworthy and almost single-handed manner in which he had battled with every difficulty, and also to the directors.

The CHAIRMAN acknowledged the vote, and hoped to continue to look after the company's interest. No effort on the part of the board would be spared to promote the permanent success of the company.——The meeting then adjourned *sine die*.

MID-MOONTA COPPER MINING COMPANY.

A general (adjourned) meeting of shareholders was held at the City Terminus Hotel, on Wednesday,

Mr. CHARLES MORRIS in the chair.

Mr. P. H. POPE (the secretary) read the notice convening the meeting.

The CHAIRMAN said the shareholders were well acquainted from the discussion which had recently taken place as to the position of the company's affairs. The object now was to consider the best way they could get the company out of its difficulties. It was admitted on all hands it would be a very great pity to allow the mine to pass out of the hands of the present proprietors, more particularly as there were some chance of being assisted in the colony. The manager—Mr. Harvey—had been written to with reference to the great expenditure which seemed to be going on, and the desire of the directors that it should be reduced, as the shareholders were complaining, and suggesting that he should reduce his salary to 100*l.* per annum. Since the last meeting a telegram had been forwarded to Mr. Harvey advising him that the meeting had been adjourned till March 10. A telegram had been received from Mr. Harvey to the effect that the proposals of the board had been accepted; so that it now remained for the shareholders to adopt such means as they deemed best to raise the necessary additional capital.

Mr. SEYMOUR said it appeared that the only thing to ensure success was funds, and the question was how it was proposed to raise them. It was clear they must have more funds, or the company must be wound-up. He should like to know if the directors were in direct communication with the committee of shareholders at Moonta?——The CHAIRMAN replied in the negative.

Mr. SEYMOUR said from what he could gather from the newspaper reports of the proceedings of the meeting in the colony, the shareholders were unwilling to take more shares in the mine unless Mr. Harvey was dismissed. Therefore, he should like to know if in the event of more funds being raised how they were to be disbursed?——The CHAIRMAN said that they would be disbursed exclusively on the mine, and it would be stipulated that the expenditure should be under the control of a colonial gentleman who had taken an interest in the mine.

Mr. SEYMOUR said he should be very pleased to take up more shares if he could see any reasonable prospect that the money would be expended on the mine.

The CHAIRMAN said that would not be the difficulty, the real difficulty was the getting the money.

Mr. SEYMOUR had no doubt that those who contributed further funds would require more inducement than that offered by ordinary shares at par. If he were rightly informed, two-thirds of the present interest was held by a trustee in bankruptcy; he presumed no subscription would be received from that source.

The SOLICITOR said that an arrangement could, no doubt, be made to secure that interest upon terms which it might be beneficial to the company to provide; but additional funds could not be expected from that source.

The CHAIRMAN said that the present company could be wound-up, and the property sold to another company.

Mr. R. H. HILL asked how many shares were agreed to be taken at the last meeting?——The CHAIRMAN: 480.

The CHAIRMAN, in reply to further questions, stated that 1000*l.* was the amount of additional capital required, and that, under new auspices, would thoroughly test the capabilities of the mine. All reports stated that the property was intrinsically a valuable one. The expenditure of the 1000*l.* would be spread over two years.

The SOLICITOR, in reply to a question, stated that all necessary steps had been taken to secure and protect the mine.

Mr. SEYMOUR said that if the shareholders in England subscribed 500*l.* they, probably, might count on the other 500*l.* from the shareholders in the colony.

The SECRETARY read letters from shareholders agreeing to take additional shares to enable the directors to develope the mine, upon the condition that those who now subscribed should have the option of taking more shares at par should the mine prove a success. All agreed that it would be most unwise to abandon a mine which was admitted on all hands to be of great value.

Mr. ALFRED C. POPE was very much disposed to think that if a circular were addressed to each shareholder, stating the facts of the case, and that already 480 shares had been promised to be taken up, such responses would be received as to fully justify the directors in carrying on the work.

It was mentioned that a subscription of only 600*l.* had proved sufficient to open the Moonta Mine into a valuable property, its own revenue paying for all subsequent cost of development, machinery, &c., and it had paid large dividends to the shareholders; and also that there are many other profitable mines in the neighbourhood.

After some further discussion, it was unanimously decided to make an appeal to the shareholders, and at the same time to inform them that an alteration would be made in the management, and that the additional capital subscribed would be expended exclusively in the development of the mine.

A vote of thanks to the Chairman and directors closed the proceedings.

WEST GOGINAN SILVER-LEAD MINING COMPANY.

An extraordinary general meeting of shareholders was held at the offices, Lothbury, on March 5, to consider the report of the committee of shareholders appointed at the general meeting, held on Jan. 12, and to pass such special or other resolutions with respect thereto as may be deemed advisable,—Mr. HESELTINE in the chair.

Mr. E. W. LAYTON (the secretary) read the notice convening the meeting.

The CHAIRMAN said through the courtesy of Capt. Hill he found himself occupying the chair upon the present occasion, which he much regretted, as Capt. Hill would have discharged so much better than he the duties of the position. It, however, gave him (the Chairman) an opportunity of apologising for his unavoidable absence from the meeting held on Feb. 12, when the shareholders appointed a committee to consider the most advisable course to be adopted to raise the additional capital necessary to continue the development of the mine. In furtherance of that object, the committee had prepared the following report:—

The committee appointed to consider the best means of raising the capital required to complete the development of this mine have given the matter their utmost consideration, and having carefully weighed the merits of the various proposals made to them, they now recommend that the wholo of the unallotted shares in the company be issued to the present proprietors at a discount of 10*s.* per share. This would raise, within a few hundred pounds, the full sum estimated by the manager for the completion of all works necessary to make the mine dividend paying. The payments will only be required in sums of 5*s.* per share, and at intervals of three months. The committee earnestly recommend all the shareholders to adopt their recommendation, as a partial subscription on the part of a few shareholders only will be useless for the purposes of the mine, besides being unjust to the general body of proprietors; and that this essential point be strictly adhered to—that no allotment be made until the list is full. The committee desire to place on record their belief in the intrinsic value of the mine by stating that they have each subscribed for their quota of shares, and are quite ready to subscribe to a still greater extent. The attention of your committee having been called to the qualification of the directors, find that the present board (two in number) do not hold such a substantial interest in the concern as should be held, in the opinion of the committee, by gentlemen filling the position, and they recommend that the number of the board be increased to four, and that each should hold 200 shares, and that this qualification be made compulsory. The committee are unanimously of opinion that the company's property is most valuable, and there is the strongest ground for believing that the shareholders have before them a similar career of good fortune to that realised by the Goginan proprietors, who each received 440*l.* in dividends upon their original shares. The committee, acting upon their own responsibility, and as an indication of their faith in the value of the mine, have authorised the erection of the temporary machinery required for the present development, such as pumping the shaft dry, so that the sinking may be resumed at the earliest practical moment.

All he (the Chairman) could say was the board were quite willing to do all they possibly could to assist in every way the object in view, as they had entire confidence in the mine. The intrinsic value of the property, as indicated in the report of the committee, should of itself prove a sufficient incentive to induce the shareholders to subscribe the further capital, as by its judicious expenditure no doubt could be entertained as to the results that would be realised. The board had the same faith in the mine as the committee, and the only question was as to the best mode to be adopted for raising the additional capital. All the board could say was that whatever plan was determined upon it would have their hearty co-operation.

Mr. BOWMAN regretted that Capt. Kitto was not present to give his opinion of the mine. His (Mr. Bowman's) last visit to the property more than ever convinced him of its value, and he had not the slightest doubt that in a very short time it would be making satisfactory returns. He was quite prepared to give the directors all the assistance in his power, because he had every confidence in the result. The lode in the engine-shaft had improved so rapidly since his first visit that he was confident they would have a very good mine within a moderate depth.

Mr. ROSS asked the value of the lode?——Mr. BOWMAN said the lode in the engine-shaft had never been sunk its full width, but only for 2 ft.; it was all dressing-stuff. The ore was of high value.

Mr. ROSS asked if one level had not been driven through a long course of ore?

Mr. BOWMAN said that 40 fms. of ore had been driven through, and he estimated about 25 to 30 tons had been taken away without deviating from the direct course. There had been no stoping in the mine at all. There were at least 25 tons ready for crushing.——Mr. DAVEY presumed that had been taken from the drivages alone.

Mr. BOWMAN said he meant dressed ore. One object of his being present at this meeting was to impress upon the shareholders the desirability of erecting another small wheel, as they could within a month send about 160*l.* worth of ore to market every month, and that could be very rapidly increased. He did not see why the company should be deprived of that little income. It was small but would assist the cost of development. Stoping from now would yield a profit. The whole of the ore on the surface was raised simply because it was in the way of driving the levels. He had not the slightest doubt that at the 24 fm. level the lode would pay a good profit. He believed it would be worth three times as much as it was at the 12 fm. level. Capt. Kitto calculated it would be worth 4 tons per fathom, and as it could be taken away at 3*l.* per fathom, a very handsome profit would be realised. There need be no fear about the mine when sufficiently developed.

The CHAIRMAN said the board had not summoned Capt. Kitto to be present on the score of economy. Capt. Kitto had so often expressed his opinion of the mine that it seemed unnecessary for him to be present to reiterate what he had stated on so many occasions as to the value of the property. The board left the management entirely to Capt. Kitto, and as soon as he could show them that lead could be sent to market at a profit, shareholders might be quite sure it would be done without delay.

Upon the proposition of Mr. ROSS, seconded by Mr. ADAMSON, the report of the committee was received and adopted unanimously.

Upon the proposition of Mr. ROSS, seconded by Mr. ADAMSON, it was unanimously resolved that the directors be authorised to pay a sum not exceeding 10*s.* per share for placing the unallotted shares of the company, with full power to make such arrangements with brokers or others to carry out that object as they may deem necessary.

Mr. HEWETT then proposed that Mr. Hilton and Mr. Brooks be added to the board, and suggested that as soon as the board had been finally constituted, one of its members should be appointed its permanent Chairman, which position had been rendered vacant by the lamented death of Mr. Billings.

Mr. BOWMAN seconded the proposition, which was put and carried unanimously.

The CHAIRMAN, speaking on behalf of the board, said that the two gentlemen now nominated by the shareholders should be elected to seats at the board at the first meeting of the direction.

A vote of thanks to the Chairman and directors closed the proceedings.

EAST NANT-Y-MWYN LEAD MINING COMPANY.

The adjourned half-yearly meeting of shareholders was held, on Wednesday, at the offices, Shannon-court, Bristol, Major CASTLE, Chairman of the board of directors, presiding. The following reports were taken as read:—

Your directors, in presenting their report to the half-yearly meeting, can only regret that greater progress has not been made. The sinking of the shaft, which is now 66 ft. below the 25, was completed in November, and the level has been since commenced and driven some 13 ft. The inclemency of the weather subsequently interfered with operations for a considerable time, but work is now resumed, and it will be seen from Mr. T. Trevithick's report that he expects the lode to be reached by 12 or 15 ft. further driving. Your directors regret that the severe illness of Mr. Trevithick has prevented him during the last six months from performing his duties as manager, but they have, however, been carried on by Mr. Thomas Trevithick, whose report of the mine with balance-sheet is subjoined. At this meeting Mr. Harford Lyne, one of the directors, retires in rotation, and is eligible for re-election. The shareholders will also have to elect an auditor or auditors at this meeting, and the directors have the pleasure of recommending Mr. G. S. Tricks for re-election. The directors would impress upon those shareholders who have not paid up in full the great advantage of their early payment of the call or calls now due, and also the balance remaining uncalled on their shares, in order to provide the necessary funds to complete the driving of the level to the point recommended by Capts. Francis and Northey and by your committee of investigation, and which point is now so nearly attained.

Feb. 11.—There has been but very little done towards making the proposed trial for this year as yet. I visited the mine on Friday last, and found the machinery idle, and a little water in the 35. I carefully examined the end driving towards the lode, and directed the men to keep a little more to the north of west, or in an oblique direction, so as to reach the lode with all convenient speed. The ground in the end at present is hard, and more mixed with spar and occasional spots of lead. This we anticipate as we approach the lode, which we calculate may be reached in from 12 to 15 ft. driving. This is certainly a good trial, as indicated in the 26 fm. level above, and from the fact that as you advance the 35 you get farther under the mountain, and the ground becomes more compact and more congenial for a deposit of lead ore. The machinery was much damaged and delayed by the late frost and snow, and immediately after the mine flooded by the heavy rains, and an overflow from the old adjoining mine. These circumstances following each other have seriously retarded the driving of the 35 towards the lode. At present, however, we

see nothing to prevent the men working continuously and speedily proving the trial in question, which we hope, from present appearances, will result in opening out a productive and valuable lode of lead ore.—THOMAS TREVITHICK.

The CHAIRMAN, in moving the adoption of the reports and accounts, observed that the matters to be brought before the meeting were not very important. It was rather to be regretted that through the state of the weather Mr. Northey, who had been appointed local manager, had been unable to visit the mines. It was but fair to tell them that, in deference to the feelings of the outside shareholders, on the death of old Mr. Trevethick Mr. Northey was appointed manager. Whether this was a good appointment or not he could not tell. A cousin of old Mr. Trevithick had been taking the duty, and had done that duty very well, but the feeling of the board was very strong that the opinion of the outside shareholders would be better consulted by electing Mr. Northey as the local manager rather than any other gentleman, and that was done. There was one suggestion he should like to have made to a larger meeting, and that was that it would be very much to the advantage of the mine generally if any shareholders would pay up calls in arrear, and also anticipated calls, for unless the money was found most certainly the existence of the company would not extend beyond many months. They could not go on unless they had certain funds paid in. They had the prospect of funds in one or two quarters that day, and it certainly looked encouraging, but whether the money would be paid or not he certainly could not say. If the shareholders would pay up the calls which they were liable for, and which sooner or later they would be sure to have to pay, they would have capital enough to fairly test the mine.

Mr. BOWYER seconded the resolution, and it was adopted.

Letters were read from Mr. Northey and Mr. Morgan Jones (the captain of the mine), stating that in consequence of the frost and wet weather the works were stopped, but the operations would be resumed when the weather changed.

Mr. Harford Lyne was re-elected a director, and Mr. G. S. Tricks auditor, and a vote of thanks to the Chairman and directors terminated the meeting.

THE INDUSTRIAL COAL AND IRON COMPANY.

The annual general meeting of shareholders was held at the Cannon-street Hotel, on Thursday,—Mr. G. NEVILL in the chair.

Mr. W. C. JACKSON (the secretary) read the notice convening the meeting.

The report of the directors stated that the output of coal, notwithstanding a stoppage of work in July, has shown an increase of nearly 2000 tons on the quantity raised in the corresponding period of 1873. This will be materially increased now that coal has been won at Storforth Lane and Woodhouse. The making of bricks was not originally intended as a feature of the company's trade, but was started to supply the new works and utilise the clay and shale found in the freehold. A considerable number of bricks have, however, been sold, and as the quality and make are attracting orders, the directors intend cultivating a trade in them. About 40,000 bricks weekly can be made by the machines now at work. During the half year a large sum has been spent on extensions.

To meet the traffic which will accrue from the Woodhouse Collieries, the Manchester, Sheffield, and Lincolnshire Railway Company are about to make considerable alterations at the Woodhouse Junction, and to meet this desirable object the directors have agreed to sell them a small portion of the surface land belonging to this company. It will, however, be understood that the company reserve all the mineral rights of the ground so disposed of. The directors are unable to recommend a dividend for the past half-year at a higher rate than 5 per cent. per annum, in consequence of the bulk of the capital upon which this dividend has to be paid being up to this time unremunerative. Such dividend will absorb about 165*l.*, leaving about 340*l.* to be carried forward. Now that coal has been reached at both the new collieries the prospects of the company are very encouraging, and the shareholders may confidently expect the dividends steadily to increase.

The CHAIRMAN said he had but little to add to the information contained in the report. There had been delays, but the new pit at Storforth Lane had been completed to the Dunston coal, new and powerful winding-engines erected, and extensive sidings put in, but they had not yet been able to get their coal on the railway, as they were waiting for the Midland Railway to put in their crossings, which necessitated an alteration in the signals. This he believed was to be done in a few days. From that source they would be able to turn out 200 to 300 tons of coal per day. They had agreed to purchase the land on which pits were to be sunk for the seams of coal at Chesterfield; one was stated to be 9 ft. thick. At Woodhouse there had been an accident, which fortunately resulted only in loss of time. Having referred to the encouraging future of the enterprise, he moved that the report and accounts be received and adopted.——Mr. OWEN seconded the proposition.

The SECRETARY, in reply to a series of questions from Mr. GIBBON, stated that the loan account had been opened by the power given under the Articles of Association, which gave the directors power to raise money in any way, and the money that had been advanced by the bankers was on the personal responsibility of the directors. There was nothing due to the vendors. Since January some of the bills then due had run off, and others incurred—the bills now due were 3390*l.*, against at that time 4990*l.*, but that did not indicate anything one way or the other. The wagons were purchased on what was known as redemption rental. The royalty was paid as rent on coal whether coal was got or not until sufficiently large quantities were raised to pay the rent. The difference in the item of expenses incidental to the formation of the company was on account of premiums on shares which had been put to the credit of the account.

Mr. SWINDELLS asked the gross amount of sales and the gross amount of wages paid?——The CHAIRMAN did not think it desirable to state those facts publicly—shareholders could get them privately at the office.

Mr. HOLT asked if it was the intention of the board to continue the co-operative system? He understood that Messrs. Briggs and Co. had discarded the system. If such a firm as that found it did not answer, he was quite sure that this company could not do so. He also asked if it were desirable to have an office both in Sheffield and London?——The CHAIRMAN did not think it desirable to do away with the London office at present. He was sorry that Messrs. Briggs and Co. were discarding the co-operative system, because he feared it would be a great blow to the industrial principle. As far as this company was concerned, a document had been drawn up debarring the men from any claim.

Mr. POOLE (the solicitor) explained that the employees of the company, not being shareholders, had no *locus standi*, and the document referred to effectually deprived them of it.——Mr. HOLT thought if the principle was not carried out it would cause disaffection. Either abolish it, or carry it out implicitly.

Mr. NICHOLSON (managing director) did not think shareholders generally would like the principle to be abolished at once, but would like to give it a fair trial. They certainly had great difficulty with the men, to start with; they were not so grateful for the bonuses received as they should have been; but that gave them an opportunity to weed their men, and they now had a much better class. He should be sorry to see the shareholders take a rash action upon this matter. Should the industrial principle be found antagonistic to the interests of the company, the directors would at once recommend its abolishment. The men got no advantage till the shareholders received 10 per cent., and then both were on a level.

After some further discussion, the report and accounts were received and adopted.

The retiring directors were re-elected.

A vote of thanks to the Chairman and directors closed the proceedings.

BILSON AND CRUMP MEADOW COLLIERIES COMPANY.

The first annual general meeting of shareholders was held at the Cannon-street Hotel, on Wednesday,

Mr. ALFRED GOOLD in the chair.

Mr. JOHN S. FEAST (the secretary) read the notice convening the meeting, and the report of the directors was submitted:—

The directors reported that the total profit for the year amounts to the sum of 12,390*l.* 6s. 10d., and after paying 1792*l.* 10s. interest on debentures, writing off 21*l.* 13s. 3d. from extra works account, 200*l.* towards preliminary expenses, 3457*l.* 9s. 10d. interest on unpaid capital, in addition to ordinary working expenses, the sum of 7725*l.* 13s. 9d. remains for appropriation, out of which the directors recommend that a dividend at the rate of 12 per cent. per annum be declared, leaving a balance of 506*l.* 18s. 9d. to be carried on to the current year's account. The proposed dividend amounts to 11s. 3d. per share. An interim payment of 4s. per share has already been made to the shareholders on account of the year's profits, thus leaving 7s. 3d. per share to be received. This sum, amounting to 5218*l.* 15s., your directors suggest should be paid free of income tax. During last year a strike of unprecedented duration happened in the Forest of Dean. Of course such an event caused a temporary loss of revenue, but its termination, fortunately, has been in our favour, and will give us many permanent advantages. The present state of the mining community of South Wales confirms the apprehensions of the Forest employers of a further reduction of wages being demanded in that district.

The CHAIRMAN said that the directors had but little to add to the report, but they wished him to allude to the strike which had affected the dividends of the company. They had to deal with a class of men who sometimes fancied that they were unfairly treated by their masters because a reduction of wages became necessary; there was, consequently, no alternative but now and then to submit to the inconvenience of a strike, which was sometimes of short duration, but in this particular instance had been of three months' duration—two months in last year, and one in the present. It had, of course, affected the revenue of the company, although the result had been in their favour, for he believed they had crippled the Amalgamated Association of Miners. The subscribers to it were very numerous previously, but the Dean Forest strike had practically ended the matter. The Association, as many of the shareholders were no doubt aware, was for the purpose of promoting and then supporting the men when the strike was going on; but, fortunately, in this case the Association had not the money to continue the payments, and the consequence was that the strike could not be maintained. When the masters gave notice of a reduction they were of course obliged to adhere to it, and if they could not come to an amicable arrangement they had to take the consequences of a strike. Considering all the facts of the matter, and that during the two best months of the year they had been idle, he thought they might congratulate themselves that they had come out of the fiery ordeal so well as they found themselves. He concluded by moving that the report and accounts be received and adopted.

Mr. J. C. RICHARDSON seconded the motion.

Mr. BOURNE enquired how much the strike had affected the output?——A SHAREHOLDER said he would ask why the accounts and report had reached them so late, as in another colliery in which he was a shareholder they had received the accounts and had their dividend a month ago?

Mr. NORTHCROFT did not make the enquiry with any feeling of opposition, but would be glad to know, and no doubt many other shareholders would also like the information, what was the total amount of the preliminary expenses?

The CHAIRMAN, in reply to the several enquiries, stated that the strike had affected the output for the year ending December to the extent of about 16,000 tons. He was ready to admit that the accounts were rather later than desirable, but he did not see that colliery accounts could be made up by Feb. 1, as by that date there were many items which could not be ascertained. He would promise them that in future the accounts should be ready some time in February, and he might tell them that if it had been possible to have got them ready earlier upon this occasion he would have preferred it, as being himself a very large holder it would have made as much difference to himself as to anyone. As to the question with regard to preliminary and London expenses, he might mention that their preliminary expenses were very low as compared with those of other companies. In the case of Andrew Knowles and Sons, where it was true the capital was large—1,152,000*l.*—the preliminary expenses amounted to 21,372*l.* 16s. 3d.; and in Thorpe's Gawber, where the capital was no larger than their own, the preliminary expenses were between 17,000*l.* and 18,000*l.* Their own preliminary expenses would not exceed 1800*l.* or 2000*l.*, including 600*l.* for stamp duty, so that theirs had been kept down to the lowest. As to the London expenditure, the item of general expenses 422*l.* 17s. 5d., included 275*l.* for assurance of the life of the vendor, so as to secure 10,000*l.* in the event of his death; the interest of 4249*l.* 19s. 10d. included interest on the unpaid capital and debentures; the directors' fees, 450*l.*, were a necessary expenditure; salaries and rent 250*l.*, included secretaries' salary and use of offices from March 1 to Dec. 31, 1874, and the 200*l.* had been written off to preliminary expenses, which he had already shown were very reasonable. The interest on the unpaid capital arose because the property was purchased as from Jan. 1, whilst the whole of the calls were not paid until Oct. 1. The actual loss through the strike had been from 4½ to 5 per cent.

Mr. BOURNE complained that whilst the prospectus guaranteed him 10 per cent, which should have given him 1*l.* dividend on each 10*l.* share, he had received but 11s. 3d., although he had paid up his shares in full.

The CHAIRMAN explained that the honourable shareholder had really received 12 per cent. instead of 10 per cent., and that the fact of his not having received more than 1*l.* per share arose from the whole 10*l.* not having been earning interest for the entire year. The shares had been paid up in full it was true, and for this payment Mr. Bourne had received 6 per cent. irrespective of the dividend. The dividends were, of course, declared upon the amounts called from time to time, so that a shareholder who had prepaid his call in consideration of receiving 6 per cent. interest was not entitled to the 12 per cent. dividend on the pre-payments, which would be equivalent to giving 18 per cent. for paying up his shares in full.

A SHAREHOLDER enquired whether the whole of the capital was now paid up, and whether there had been any difficulty in renewing the debentures?

The CHAIRMAN said that the whole of the capital had been paid up, and that the debentures had been renewed to the extent of 3400*l.*

The resolution for the reception and adoption of the report and accounts was then put to the meeting and unanimously carried.

Upon the proposition of the CHAIRMAN, seconded by Mr. C. T. WILSON, it was unanimously resolved that a dividend of 12 per cent. per annum upon the capital as subscribed be declared, and Mr. E. G. Clarke, of Bristol, was appointed auditor for the current year with 12*l.* 12s. for remuneration.

Mr. H. RUSSELL EVANS, in moving the re-election of the retiring directors—Messrs. Alfred Goold and J. Crow Richardson—would mention, as reference had been made to the strike, that practically it would have been the vendors who would have lost if the profit had been thereby diminished, so that it had not been equal to 10*l.* per cent. During the past six months there had been many difficulties to encounter, and the Bilson and Crump Company had, upon the whole, passed through them well. It was worthy of consideration, too, that the capital account was closed, so that every charge made was against revenue. All expenditure on the improvement of the property since it had been in the hands of the company had been from revenue, and in any dispute with the men it is Messrs. Goold who have really the risk.

Messrs. Goold and Richardson having been unanimously elected, and the honour of re-election having been acknowledged by them, thanks were voted to the Chairman and the directors, and the meeting separated.

NEW SHARLSTON COLLIERIES COMPANY.

The annual general meeting of shareholders was held on Wednesday, at the City Terminus Hotel, Cannon-street,

Admiral W. WINDHAM HORNBY in the chair.

Mr. SAMUEL M. ROBINS (the secretary) read the notice calling the meeting, and the report of the directors. There was a large attendance of shareholders.

The CHAIRMAN said that before entering upon the report and accounts he would refer to two other matters, which would tend to clear the ground. In the first place he wanted to explain why the meeting was held in London. When he was in Yorkshire, in February, a requisition was received asking the directors to hold the meeting in Yorkshire, and that requisition was signed by shareholders holding between 300 and 400 shares. On returning to London he found that a requisition had been sent to the office, asking for the meeting to be held in London, and that requisition was signed by shareholders representing 1200 shares, and under those circumstances the directors decided that it would be more in accordance with the wishes of the shareholders that the meeting should be held in London, and the question as to where the future meetings will be held would have to be settled by the present meeting. He would now refer to several matters upon which he had been questioned by letters, and first—if he had himself signed the Articles of Association. He did not sign the Articles of Association, nor was he a director at the time they were drawn up, and he had no hesitation in saying that there were two or three clauses in those Articles which ought never to have been put in. (Hear, hear.) He had also been asked how he first became acquainted with this colliery, and why he was induced to take shares in it; he would most readily answer the question. In October, 1873, he was living in Lancashire, but was about to remove to London. A friend who lived about five miles off met him, and asked him to obtain some information about the Mutual Society, and in the course of his enquiries he received a letter referring to the New Sharlston Collieries as a sound and paying investment. That letter was signed by Mr. Stephen Emmens. He received other letters to the same effect, which induced him to make some enquiries as to what it was likely to be. The result was that he attended the first meeting on Oct. 30 in the same year, and from what he heard he not only believed it was a very good thing, but thought he was lucky to get on so good a concern. He afterwards returned to Lancashire, and did not attend again till Nov. 15, and his belief in the goodness of the concern was confirmed by the fact that there were applications for 18,000 shares, and amongst them were a number from Yorkshire, many living within 10 miles of the pit. He wished to speak plainly on this point, as probably this was the last time he would have the opportunity of addressing the shareholders in the capacity of Chairman. Mr. Beck, a dissatisfied shareholder, had stated that his (the Chairman's) name carried weight in inducing people in the district to become shareholders, but he considered that that statement was not founded on fact. Well, the company went on, and the shares were distributed, and sometime in November he was elected Chairman of the company, and he could say without fear of contradiction that no one had worked harder than he himself had done for the company. (Hear, hear.) He went on to refer to the various clauses in the prospectus, and said the statement relative to the output was founded upon the balance-sheet of the original owners—Messrs. Crossley. To show that the directors were justified in believing the statements which were put forth in the prospectus, he quoted the statements made in Mr. Higson's report relative to the repute in which the coal was held, the amount of reserves in the mine, and he (the Chairman) also called attention to the assertion in the prospectus that the property was put upon the market owing to the death of two of the late owners—Sir F. Crossley and Mr. J. Crossley. Mr. Kimpton had also stated that the price given for the colliery was a reasonable one, provided it carried the freehold as well. Well, the company got to work, and when he told them that in the first five weeks the colliery made a profit of 4101*l.* 2s. 3d., he thought the shareholders would agree that the directors had a right to hope that it was not a bad concern. In January the price of coal fell, and the price up to June 15 averaged differently at the end of different fortnights—the period for which the accounts were made up. For the fortnight ending April 8 they lost 19*l.* 19s. 3d., then they were making profits to July 29, but during August, September, and up to November 7 they were making a positive loss. In the first place the price of coal was lower than ever before, then there was an unsettled feeling in the colliers' minds, and a smaller output of coals. Then came the strike, which caused a dead loss. On November 29 the men went to work again, and the profit began again. In the fortnight ending January 6 the profits were 903*l.* 3s. 2d.; for a fortnight in February they made a profit of 460*l.*; in the next fortnight the profit was 1037*l.*, but the return of March 3, although they were getting more coal, yet prices had fallen, and the profit fell to 767*l.* 12s. 6d. To return to the meeting in August, and a more disorderly and disgraceful meeting was never held, and it certainly had a prejudicial effect upon the interest of the colliery. At the meeting a committee of enquiry was asked for, with the view of seeing what steps could be taken to reduce the expenses of the management of the collieries. He himself did not oppose the committee, and five gentlemen were appointed, one a gentleman who had been most violent at the meeting, and other two gentlemen were practical coal merchants. He repeated that the shareholders had done themselves a great deal of harm by the appointment of the committee, for it lowered the position of the manager, and set reports going about the place that the manager was to be this and the other; and an amount of harm was done which it would take months to remedy. The main point which the committee had to report upon was as to what economy could be effected; but they found no fault with the management, but simply suggested four or five alterations in the Articles of Association, the main and only object of which was to reduce the directors' remuneration. (A laugh.) He next went on to refer to the report, and said it was not a very pleasing thing for directors to meet shareholders with a bad report. There was no doubt the best test of merit was success, and if the directors had been able to present a good report nothing would have been too good for them. (Hear, hear, and a laugh.) But the directors, instead of attempting to make things better, had placed the facts before the shareholders in all their naked truth. It would be seen that the output for the six months had amounted to 59,321 tons, or an average per day of 111 working days, of 533 tons. The pit was standing empty during 46 working days; there was a partial strike during the latter part of July and beginning of August, and a total stoppage of the pit from Oct. 7 to Nov. 9. Well, all these things were very ruinous, and it made a great difference to the cost of getting whether, the output was large or small. It was, therefore, most desirable to have a large output, and if they succeeded in making the output 900 tons per day it would greatly reduce the cost per ton for getting. He (the Chairman) went on to refer to the failure of the coal-cutting machine, and likewise to the damaging and unfair remarks which had been made in certain quarters on this this subject. A local paper, referring to the report of the directors, made the following remarks:—"With reference to the remarks in the above report reflecting upon the non-success of the various coal-cutting machines used at the New Sharlston Collieries, Messrs. Hurd and Co.'s Patent Machine Mining Company desires us to publish the following:—"It is an error, so far Messrs. Hurd and Simpson's patent machines are concerned, for the directors of the New Sharlston Coal Company to assert that our coal-cutting machines have been a failure. Messrs. Hurd and Simpson's Patent Machine Mining Company are prepared, and have proposed to the present board of directors (from satisfactory results obtained at those collieries with two of their machines, wilfully broken up by stealth), to mine the coal with such machines at a cost, including office and other expenses, in connection with the colliery, for a sum not exceeding 6s. per ton, and their only remuneration should be moneys saved below that amount." Well, he could only say that everything was done to make those two machines work, and not only were they an entire failure, but they were so much in the way that they were causing a great loss, and the directors had to order them to be removed. There were two other coal-cutting machines which belonged to Mr. Firth, which, probably, with certain alterations might be made effective. It would be seen that Mr. Jeffcock considered that the outlay for new engines and ventilating fan need not have been incurred for some time, but when Mr. Jeffcock first reported this they were too far advanced to be suspended, and they were now being completed under his supervision, and with his approval. As regarded the resignation of Mr. S. H. Isaac, the manager, he thought that there should never have been a clause put in the Articles of Association making that gentleman manager for five years. He believed Mr. Isaac to be a man of great cleverness, ability, untiring zeal, and most perfect honour and integrity, but he did not possess experience enough for so large a concern. As regarded the holding of the future general meetings in London or Yorkshire, that was a point which the shareholders would have to decide today. Referring to himself, he said that he retired by rotation, and he should be only too glad if another gentleman, possessing the necessary practical knowledge, were substituted in his place. At the same time he had done his utmost to serve the company, and he had a strong opinion that it would yet succeed, and if they turned him out—(no, no)—he only hoped they would put in someone who would serve the company as honestly and zealously as he himself had done. Having expressed his hope that the discussion would be conducted without personalities, and with the view of promoting the welfare of the company, he concluded by moving the adoption of the report.

Mr. WHITEHEAD, in seconding the adoption of the report and accounts, said that the present board had nothing to do with the verification of the prospetus from which the Chairman had been quoting. He was sorry that the Chairman had attacked the committee. There was no doubt that they had been misled by the management to spend such a large amount of money.

Mr. BARBER said that the Chairman had entered into the matter through the instrumentality of some tried and trusted friends, amongst them a minister of the Gospel. (Laughter.) He wished to know whether the Chairman had entered into the matter for the purpose of finding employment for himself or to make money as a shareholder? (Cries of "Oh, oh!" and disturbance.)

The CHAIRMAN said, in the first place, he would say that Messrs. Emmens were no friends of his.

Mr. BARBER thought that if the Chairman had had implicit confidence in the undertaking he would have invested more in it. (Cries of "Oh!")

Mr. BECK said he had now got at the name of the person who had persuaded the Chairman to give the use of his name. The whole of his correspondence with the Chairman had been for the purpose of ascertaining facts, which had not been given. He wished to know if the directors had taken the promoter's statements, and complained of the exaggerated statements of the prospectus. The directors had received 2194*l.* in remuneration, and their travelling expenses amounted to 745*l.* There was a firm in Lancashire which was subjected to the strike at the same time, but which paid 37½ per cent., but this was owing to better management. They had now received Mr. Jeffcock's report, and he told them very plainly that there was not over one-half the area of coal which the prospectus shows. He He told them that there was a serious fault occurring, which caused the coal to be worked out in two or three years in one of the seams. The colliery had never made a profit except during the "roaring times," and he affirmed that the directors were especially remiss in not making full enquiries into the matter. He then moved, as an amendment, "That the report which is read and the statement of accounts be not adopted until at least the promoters and directors have refunded some of the excessive funds they have received for conducting the business; and, further, that these directors be at once requested to vacate their positions on the board."

Mr. WHITEHEAD begged to correct Mr. Beck as to the Stanley main seam being worked out in three years. They had the same quantity of coal to work as was stated in the prospectus.

Mr. JEFFCOCK said that according to the plans there were 1100 acres in the Haigh Moor seam, and there were two faults. If they would read his report it would explain the matter. There was one fault running east and west, and another fault running nearly north and south. Most of the Haigh Moor seam on the shaft side of the fault would be worked out in two years, and they were now opening out the works on the other side of the fault. From this 1100 acres it was safe to assume about 700 acres remained to be worked. The same quantity remained to be worked in the Stanley Main seam, as the coal on the shaft side of the fault, which runs east and west, was worked out, and they had on the other side of the fault a new district. The quantity of coal in each of these seams he estimated at about 700 acres.

A SHAREHOLDER asked whether the serious faults now spoken of were discovered at the time Mr. Higson's report was made?——Mr. JEFFCOCK, in reply, stated that he would require to have the plans and the date before he could answer this question.

Mr. J. B. GRUNDY seconded Mr. Beck's amendment, and asked the Chairman how many shares the directors took originally, how much they paid for them, and if in actual cash? He believed the original sellers sold the property for one-half what the shareholders paid for it. (A Voice: 40,000*l.*)

The CHAIRMAN, in reply, stated most emphatically that not one of the directors received a single share. They paid for them in hard cash, and not only did they not receive the shares, but they were never even offered. (Applause.)

Mr. SEAL thought that the resolution submitted to the meeting was divisible into two parts, of which one was altogether impracticable. The fact of not adopting the report of the directors would not bring their money back, for if they were entitled to get it there were ways and means of doing so. He hoped the gentleman would withdraw his amendment, as a more suitable one would be submitted to the meeting.

Mr. STRACHAN then proposed that the report and accounts be received and not adopted.——Mr. HINDLE seconded this amendment.

None of these amendments were adopted, and after much discussion an amendment to the effect "that the report be received" was carried unanimously.

Mr. SUTHERLAND said that at the meeting of last November a great deal of discussion had arisen as to the Articles of Association, and since then he had got a copy of these Articles for perusal. He had found in the appendix that in the contract between the vendor and the company there was a reserve of some 300 acres, being 25 per cent. of the property, which he had never noticed. Questions had been asked why these large reserves had been made, but no explanation had been given. He had, therefore, come forward with a resolution to give a committee time to enquire into the honesty or dishonesty of the matter. He would make no accusation against any man, but these were facts, and upon these facts he asked them to appoint a committee of investigation. If the circumstances which had attended the formation of this company had been honest and above board an enquiry could do no harm or injury to anybody. It would, perhaps, show them that they had got a bad bargain, but it would also show how the property had come into their possession, and whether there had been a fault in the transfer; it would show whether the responsibility rested on honest John Brand or on Isaac of York. He then proposed "That a committee of five gentlemen be appointed for the following purpose: To enquire into and investigate the circumstances attending the promotion and incorporation of this company."——Mr. CARTER seconded the resolution.

Mr. WALFORD said he was a small shareholder who had spread his eggs over many baskets, and he had listened very attentively to the statements made at this meeting, and he had a strong objection to the meeting being made a cats-paw of. If the proposed enquiry would serve any practical end for the good of the colliery he would be very willing to accede to it, but it was not so. None of the gentlemen on the other side of the table were charged personally with having received anything out of this company in a dishonest way. The committee would, then, have only to enquire into the acts of the promoters, and supposing that the committee did make this enquiry, and reported that something wrong had taken place, what power would they have against the promoters? He ventured to say they would have no power. The shareholders had now only to file a bill against the promoters, and they could find out everything, and get a decree of Court if anything had been misapplied. He believed that the gentlemen who now moved for this committee of investigation had been connected with the promoters of the company. There had been no concealment as to the reservation of the 300 acres, for the prospectus stated that "its mineral rights extend over 1182 acres, for all coal, ironstone, and other minerals, except as to one seam of coal (the Stanley Main), which extends to 882 acres only." There was the matter in black and white; there was, therefore, nothing to enquire into. He, therefore, objected to the meeting being made a cats's-paw of by a man who knew better than all others what the real facts were.

Mr. SUTHERLAND denied the statement that he had been a promoter.

The CHAIRMAN: Were you one of the syndicate.——Mr. SUTHERLAND: I was not directly one of the syndicate. (Laughter.)

A SHAREHOLDER: Did you receive any benefit from it? How many deferred shares did you get?——Mr. SUTHERLAND: I got 25 deferred shares.

A SHAREHOLDER: Were these shares given you or did you pay money or money's worth for them?——Mr. SUTHERLAND (after some hesitation): I found the money to purchase 1182 acres of property.

A SHAREHOLDER said he was astonished that Mr. Sutherland had appeared in such a light, and the shareholders would require to be very cautious as to what resolutions they adopted.

Mr. CARTER stated that he would withdraw from his position as seconder of Mr. Sutherland's motion, whereupon the resolution was seconded by Mr. SEAL, who in doing so, stated that he had a copy of the prospectus anterior to the one issued to the shareholders, which stated that the colliery was held under lease for the unexceptionally long period of 999 years, and the mineral rights extended over 1182 acres, and in the prospectus no mention was made of a reservation.

The CHAIRMAN asked whether the names of any of the directors was appended to the prospectus?——Mr. SEAL: No; your names are not there.

A SHAREHOLDER asked whether the 300 acres were included in the transfer from the original promoters?——The SOLICITOR, in reply, stated that at that time these 300 acres were under a lease from Messrs. Crossley at a royalty.

A SHAREHOLDER next proposed—"That a committee of five gentlemen be appointed for the following purpose—to enquire into and investigate the circumstances attending the promotion and incorporation of this company," which was duly seconded.

Mr. SPOME said that they now had more confidence in the board than when the meeting began. He would propose that the board go into the matter, and report to the shareholders upon it. He hoped they would not allow the Chairman to retire, because there was a vein of candour and honesty about all he did, and he hoped the shareholders would retain the present directorate, in addition to two or three clear-headed and sharp-fisted Yorkshiremen. (Laughter.)

The CHAIRMAN thought that no board could find out how all these matters were put at the first. He did not think that a committee would do any good, or produce anything. If they were not satisfied with him as their Chairman he would be only too glad to give up his post.

The Rev. Mr. WRIGHT said that he held 150 shares. He thought that they had got into a very bad position, but they would not mend matters by quarrelling over it.

Mr. Sutherland's motion, on being put to the meeting, was declared lost, amidst great applause.

Mr. SEAL, on behalf of Mr. Sutherland, then demanded a poll, but the requisition handed in was declared invalid.

Col. HOLLAND then moved the re election of Admiral Hornby as a director, and remarked that he need say but a very few words on the subject. The admiral's reputation was so well known that nothing that he could say could increase it.

His devotion and attention to the affairs of the company he could bear witness to.—Mr. WHITEHEAD seconded the motion.

Several other gentlemen were then proposed as directors, and after considerable discussion the following gentlemen were elected to fill the three vacancies in the board—Admiral Hornby, Dr. Hollings, and Mr. Beck.

The auditors—Messrs. Waddell and Co.—were next re-elected.

Mr. BECK then proposed that the report be adopted. This was duly seconded by a SHAREHOLDER, when

Mr. SEAL moved as an amendment that "the adoption of the report be for the present deferred."—This was seconded by Mr. SUTHERLAND, and on being put to the meeting was lost.

The original motion for the adoption of the report was then put to the meeting, and carried amidst great applause.

The meeting was then made special, when Mr. BECK proposed a motion to the effect that the head office of the company should be removed to Yorkshire, but on being put to the vote this was lost by a large majority.

Mr. BECK then demanded a poll, but no notice was handed in to the effect.

With a vote of thanks to the Chairman for his conduct in the chair, the meeting, which had lasted over four hours, terminated.

EAST POOL.—At the meeting, on Tuesday (Mr. R. R. Broad in the chair), the accounts showed a profit on the two months' working of 1424*l.* 9s. 8d., reducing the debit balance to 2467*l.* 0s. 5d. The agents' report was considered highly satisfactory. Deep regret was expressed at the death of Mr. J. Denniss, and it was resolved that a letter of condolence be sent to the widow annd son.

EAST WHEAL LOVELL.—At the meeting, on Tuesday (Mr. H. Rogers in the chair), the accounts for four months ending January showed a debit balance of 45*l.* 3s. 5d. The report was encouraging. They have about 16 tons of tin unsold.

'For remainder of Meetings see to-day's Journal.]

IMPROVEMENTS IN BLAST FURNACES—THE CLOSED HEARTH SYSTEM.

The closed hearth invented by Mr. Lürmann, and referred to in the *Mining Journal* some time since, appears to have given great satisfaction wherever it has been applied. It is well known that, as a rule, a much larger proportion of slag than iron is produced; it is, therefore, a necessity for the metallurgist to get rid of the slag till a sufficient quantity of iron has been gathered at the bottom to have it tapped, which is generally done at certain intervals—say, every 12 hours. To effect this discharge of the slag, it has been usual to construct the hearth with a so-called open forepart. This consists in the widening of the hearth in the front from 4 to 5 ft. in length, 2 to 3 ft. in width, and 2 to 3 ft. in height, being closed in the front by the dam. The lowest part of the top of this opening, protected by a tymp-plate, is generally 10 to 18 in. below the level of the top of the dam. The slag, to leave the furnace, has to travel underneath the tymp along the forepart over the dam, so that either it has to stand at a higher level in the hearth than the top of the dam, or—this is usually the case—the pressure of the blast effects the discharge of the slag.

This system was long acknowledged to have many disadvantages, and it was long felt that if the open forepart could be done away with they would disappear; in fact, the first blast-furnaces were without forepart, and have been and are known in Germany and Austria under the name of "Blauöfen." The hearth is made circular, and has a tapping-hole, two tuyeres, and a slagging-hole, consisting of a slit in the wall stopped with clay. When the slag has to be run off a hole is made in the clay of this slit, through which the periodical, not continous, discharge takes place. A more primitive method, still in use in Styria, is to run off the slag, together with the iron, through the tapping-hole. This simple procedure, however, is only possible where the ore is very rich, easily fusible, and where the fuel consists of charcoal, where consequently but little slag is produced. These furnaces work with closed hearths. The labour at such furnaces being minimised, it has often been tried to adopt this system to coke blast-furnaces, but for a long time without avail. The slag of such furnaces is hotter, and dissolves the clay. When, therefore, the Blauöfen system was tried at the coke blast-furnaces, the hole in the clay through which the slag ran though originally small became soon larger and larger, much blast was lost and the fuel thrown through the so created opening. To stop the hole the blast had to be taken off, which occurred, however, so often that the ordinary plan was found to be more profitable. Still, eminent metallurgists—amongst others Prof. Tunner, of Vienna—considered the open forepart system imperfect, and strongly desired and advocated the adaptation of the closed hearth system to coke blast-furnaces. Mr. Lürmann when he found that slag would run through a block cooled by water had discovered the means to do away with the forepart. He applied his plan to a furnace in blast, and obtained results so good that all the furnaces at Georgs Marien Hütte, near Osnabrück, where he was then managing director, were altered accordingly. His system was soon adopted at most of the best ironworks in Germany, and later in the United States of America. It was also introduced in Austria, Belgium, France, and England; and he has since done much towards perfecting his invention. The hearth is entirely circular, there is no tymp, forepart, or dam. The blast tuyeres are 42 in. or more above the bottom of the hearth, and equally distributed all round. Between two of the tuyere-houses there is an opening for the slag discharge 32 in. high and 20 in. wide, covered in by cast-iron plates. In this opening a water-cooled casting is placed, of which the back part is flush with the inner side of the furnace. This casting is smaller than the opening, to facilitate an exchange; the space left between the casting and the wall is filled with fire-clay and fire-bricks. Into this casting the scoria block is fixed, which is a block of metal, cooled by water, with a hole for the slag to run through. It may be made of any metal, cast or wrought iron, but preferably of bronze. The bronze scoria blocks last much longer than the cast or wrought iron ones, and need not, therefore, be exchanged so often. They are also cheaper in the end, as old cast or wrought iron scoria blocks are nearly valueless, whilst those of bronze fetch more than half their original price. The scoria blocks have wrought-iron pipes of 1 in. bore screwed into them for the inlet and outlet of water. The slag-hole has from 1 to 1½ in. in diameter; the size depends entirely on the quantity and consistency of the slag produced. It should be so chosen that as much slag is discharged as is made. The centre of the hole is from 12 to 16 in. below that of the tuyeres; the blast will, therefore, not be obstructed by the slag. The block is held in its position by a key to the casting; if the block has to be exchanged the key is taken out, and a bar with a nose put through the reserve opening. The scoria block, against the back of which the nose of the bar is made to rest, is then easily pulled out. The tapping hole is placed wherever most convenient in the circumference of the hearth, the slag and iron need not, therefore, be run off on the same side, as is necessary at furnaces with open foreparts.

In working furnaces on this system. It is not necessary when about to tap to stop the scoria-hole, as the slag will cease flowing as soon as the iron runs out of the tapping-hole. When the cast is completed, the tapping-hole has to be closed in the usual way; this is the only time when the blast must be taken off, except in case of accidents. At the same time the scoria block is cleansed from the scoria crust, then stopped first with sand, and afterwards with a little clay. These operations will be finished in three or four minutes; the blast is now turned on full. To prevent a thick crust forming behind the scoria block, only very little water should now run through it. As soon as the slag is observed at the tuyeres, the hole of the block has to be opened, which may be done with a wire rod, if the furnace work well, otherwise a blunt bar, a little less in diameter than the hole, must be driven through it some distance into the hearth, and then quickly pulled back. The slag will follow in a stream of the size of the hole. As soon as the slag begins to run through the block the water must be so far turned on as to leave the block lukewarm. If the proper size of the hole of the scoria block, according to the quantity and quality of slag produced has been chosen, the slag will run uninterruptedly till next tapping time. For a large coke blast-furnace, with good hot thin slag, a hole of 1½ in. has been found sufficient. Should blast blow through the hole continuously it is a sign that it is too large, and a block with a smaller hole should be put in. If temporarily less slag is made it suffices to put a bar tipped in clay into the hole, when this slag will cease to run. As soon as there is sufficient on again the bar is withdrawn. It is best to tap after a certain number of charges have been put into the furnace; the number is regulated by the quantity of slag run out through the tapping-hole at the casting time. For it is evident that this slag occupied the space between the scoria outlet and the top of fluid iron; it should be about 10 cubic feet, to prevent the iron from touching the scoria block. If, now, the above quantity be more or less than the 10 cubic feet, the number of charges should be altered accordingly. In case the furnace should work badly, the slag will generally run through the block easily, as one end of the latter extends into the hearth, whilst the slag would not do so had it to travel the long distance underneath the tymp along over the forepart over the dam. Should the furnace work so badly that the slag will not run even through the hole of the scoria block, the reserve opening must be used. The slag will always freely run through this opening which is considerably larger than the hole of the block. After a bogieful or two have run through this opening the crust behind the hole, which blocked the discharge of the slag through the scoria block, will have melted away. The opening may then be stopped, and the scoria block hole opened.

It has been said to be a great disadvantage of this system that if the furnace works so badly that the hearth grows up there would be no means to work with bars inside the hearth; but the simple answer to this is that the bar working in such cases is of little avail, and that the proper remedy would be to alter the burdens. The closed hearth gives a better chance for the furnace to come round again than the open forepart system, as the heat is better kept together.

HYDRO-THERMIC MOTIVE POWER, AND ITS APPLICATION.

A series of inventions, closely connected with each other, have been patented by Mr. F. TOMMASI, of Paris, embracing three applications of hydro-thermic motive power, the first being an improved motive power engine. This machine is composed of two or more cylinders, filled with oil or other liquid; it is set in motion by the alternate expansion and condensation of this liquid. To produce the expansion hot water or steam is made to circulate through small tubes plunging into the liquid, and to produce the condensation cold water or any other refrigerating mixture is made to pass through the same small tubes. The liquid expanding and condensing alternately drives the pistons in and out of their cylinders, thus producing a come and go motion, which may be transformed into a circular motion by ordinary means. If, as is preferable, hot water is used, the actual working of the machine returns to the boiler the hot water which has circulated through the small tubes, thereby giving a great saving. The distribution of the steam or hot water and of the cold water is effected by means of ordinary slide valves, set in motion by a cam, in lieu of an eccentric, in order to render the distribution almost instantaneous.

The improved hydro-thermic rivetting machine, based upon the same principle, is set in motion by the alternate expansion and condensation of oil or any other liquid contained therein. To produce the expansion hot water or steam is made to circulate in small tubes plunging into the oil or other liquid; and to produce the condensation cold water or any other refrigerating mixture is made to circulate through the same small tubes. When the liquid is under expansion it lifts a vertical piston, which raises counterweights. The hot rivet is then placed between puncheons, one of which is stationary, and the other fixed to a horizontal piston, which, like the first-mentioned piston, also plunges into the liquid; this horizontal piston is clutched by a cam lever, but at this moment it is released (and driven by the pressure of the other piston, which is rapidly brought down by its counterweights), suddenly advances, and rivets the rivet. The cold current is then substituted for the warm one, the horizontal piston is brought back to its place, and the operation recommenced.

The third patent relates to an improved hydro-thermic punching machine, which is set in motion by the alternate expansion and condensation of oil or other liquid contained in the machine. To produce the expansion hot water or steam is made to circulate within small tubes plunging into the oil or other liquid; and to produce the condensation cold water or other refrigerating mixture is made to circulate through the same small tubes. When the liquid is under expansion it drives down a piston furnished with a punch, and thus punches the plate of metal submitted to its action. The descent of the piston also effects automatically (by means of a particular arrangement of slide valves or cocks) the substitution of the cold circulation for the hot one, which brings the piston back to its place. The return of the piston to its place substitutes the hot circulation for the cold one, the work recommences, and so on.

FOREIGN MINING AND METALLURGY.

The Belgian iron trade may be said to drift on from day to day, but the horizon appears to be clearing up a little, and better times are anticipated in May. Orders continue to come to hand in Belgium from neighbouring countries, and especially from England. Thus a contract for 800 tons of girders to be sent to Manchester has been just concluded. Some other Belgian works are either making merchants' iron or plates, either for England herself or for the ordinary clients of England, who find it advantageous just now to do business with Belgium. The Cockerill Company is stated to have obtained an order for 10,000 steel tyres for England. The Cockerill Company now runs ore in a state of fusion direct from the blast-furnace into the converter, and the steel which it produces is at least equal in quality to that made in England. It must be observed at the same time that if Belgian ironmasters do not remain absolutely idle, the prices which they are obtaining for their products do not improve, and the profits which they realise are insufficient. The imports of minerals into Belgium in January are officially returned at 51,900 tons, of which 44,000 tons came from the Luxembourg, and 7748 tons from France. The imports presented an augmentation of 8000 tons as compared with January, 1874. The imports of pig and cast iron into Belgium in January attained a total of 10,500 tons, of which Germany and the Luxembourg furnished 5581 tons, and England 4753 tons. Other descriptions of iron were imported into Belgium in January to the extent of 1706 tons. The exports of iron of all kinds from Belgium in January amounted to 12,721 tons; in this total rails figured for 2954 tons, plates for 1417 tons, and rolled iron for 5436 tons. Iron minerals and old iron were exported from Belgium in January to the extent of 10,260 tons. The exports of rails from Belgium in January presented a decrease of 3300 tons as compared with January, 1874, and of 4400 tons as compared with January, 1873. The exports of plates in January also presented a decrease of about 300 tons as compared with January, 1874.

The metal markets have generally ruled rather weak. At Paris, Chilian copper in bars, delivered at Paris, has made 88*l.*; English tough cake, 91*l.*; and Corocoro minerals, pure standard, 87*l.* per ton. Banca tin, delivered at Havre or Paris, has been quoted at Paris at 99*l.* per ton; Straits, delivered at Havre or Paris, 95*l.*; and English, delivered at Havre or Rouen, 94*l.* per ton. The quotation for Banca at Rotterdam has been 53½ fls.; and for Billiton, 51½ fls.

The price of coal appears to be still tending downwards at some points in France. The principal French colliery companies, on the other hand, are making every effort to maintain prices, which they do not find very remunerative even now. In the Pas-de-Calais coal stocks are stated to be much reduced, but the season is now approaching when consumption is also somewhat diminished. The Paris coal market has continued quiet.

An adjudication for coal for the Belgian State Railways presented more firmness than had been expected. What, perhaps, gives a certain firmness to the Belgian coal trade just now is the precarious state of affairs in Wales and the North of England. It appears from official returns that in January Belgium imported 56,350 tons of coal, of which 29,369 tons came from England and 14,048 tons from Germany. As compared with January, 1874, the imports showed an augmentation of 17,258 tons. Coke was imported into Belgium in January—almost entirely from the Zollverein—to the extent of 1656 tons. The exports of coal from Belgium in January amounted to 313,916 tons, of which 299,992 tons went to France. The exports of January showed an increase of 13,224 tons, as compared with January, 1874, but a decrease of 54,012 tons, as compared with January, 1873. The exports of coke from Belgium in January reached 42,700 tons, of which 22,066 tons went to France.

It is considered that the weakness which has for some time past characterised the French iron trade will now disappear. Various important enterprises will soon offer serious openings for metallurgical industry, and especially for steel, the use of which is becoming more and more general. An official decree, for instance, has just authorised the Northern of France Railway Company to substitute Bessemer steel rails for iron rails upon various sections of its old network. At St. Dizier prices have been generally supported without feebleness. Merchants' iron is quoted at 9*l.* per ton at Paris, and construction plates at 12*l.* per ton. In the Ardennes there has been rather a better current of orders; some foundries are now executing commands received from the Minister for War. MM. Mineur and Wilmot have contracted for the supply of 800 tons of fish-plates for the Eastern of France Railway Company, at the rate of 8*l.* 14s. 6d. per ton in warehouse at the works. In the Meurthe-et-Moselle refining pig is rather generally held at 3*l.* per ton. The Creusot works have obtained an order for an iron bridge at Pontailler-sur-Saone. The concern known as the Société Nouvelle des Forges, at Chartres de la Méditerranée, is about to commence the construction of three steamers; two of these are to be built on English account. The death is announced of M. Seguin, sen., a veteran French engineer. M. Seguin died at Annonay, at the advanced age of 89. He was a nephew of Montgolfier.

THE COMSTOCK BONANZA, NEVADA.

An elaborate and interesting report on the "Consolidated Virginia" and "California" mines has been made to the board of directors of the London and Pacific Coast Land and Mining Bureau by Col. J. Berton, the President thereof, and approved by the board. He states that the Consolidated Virginia Mine is located on the Great Comstock Lode, in the very heart of Virginia City, in the State of Nevada, and at about 100 feet from the railroad station. The mine is reached from San Francisco in 24 hours; by railway 292 miles to Reno, and thence 52 miles to Virginia City and the mine. Col. Berton descended the main shaft to the 1500 ft. level, in company with Messrs. J. W. Mackay and James G. Fair, and thence proceeded to the four cross-cuts which extend on this level into the ore body in four different places. Although a hot temperature of about 130° is experienced in these cross-cuts, still it is endurable for several hours, thanks to a number of air pipes distributed through all parts of the level, and which give an abundant supply of fresh air from the surface. Only one of these cross-cuts has reached the east wall of the lode, showing a width of ore of about 150 feet; the others have penetrated the body of ore over 100 feet and one of them over 300 feet; and as yet there is no sign of a wall or of any discontinuation of the ore. The quantity of rich ore in sight through the longest cross-cut is too enormous to be realised. It presents in most all parts a mass of chloride and sulphuret ores, which excels in richness anything ever produced by the Great Comstock Lode. Judging from the numerous assays made by the most reliable mining experts, there can be no doubt that the immense quantity of ore in sight will yield for many years to come an average of from $100 to $200 per ton. The production of silver is, therefore, but a question of time, and the payment of dividends a question of the crushing capacity of the mills of the company. In the 1550 ft. level a drift has been run the whole length of the mine, the northern 400 feet of which pass through ore assaying, according to the superintendent's report, from $200 to $800 per ton. The two cross-cuts which have been run on this level disclose a width of ore of over 100 ft., and neither east or west wall has yet been reached.

The Consolidated Virginia main shaft at its full capacity can raise 1400 tons per day, and an additional 100 tons per day can be sent up through Gould and Curry shaft. The company are also now sinking another shaft, 1040 feet east of the present one, with a similar hoisting capacity to that at present in use. This is intended as a joint shaft for the California, the adjoining mine, and the Virginia. The hoisting department is all in perfect order, and capable of supplying a much larger quantity of ore than can be crushed by the present mills of the company. The rapid production of ore and bullion of a mine depending entirely upon its milling facilities, it seems that the present mills are inadequate to its hoisting capacities. The company are employing 500 men, who work eight hours per day, and receive an average of $4 per day each. The present crushing power of the mine, including the new 60-stamp mill near the shaft, and which is the finest mill ever constructed on this coast, is of 240 tons, and will soon be of 560 per day. This will give a total of 16,800 tons per month. Assuming that the large body of rich ore removed from the mine, and particularly from the 1500 and 1550 levels, gives an average yield of $120 per ton, this will give a total of $2,000,000 gross per month. The expense of getting out bullion being about $23 per ton of ore—say, $400,000 for the 16,800 tons, the net proceeds of the mine can be estimated at the lowest $1,500,000 per month, as soon as the intended new milling facilities have been added to the present ones.

It appears that the nominal capital of the Consolidated Virginia and California Companies is now 21,600,000*l.*, and that the present market value of the two mines on the San Francisco Stock Exchange is 86,400,000*l.*, having recently fallen from 172,800,000*l.* Col. Berton states that each company has now a capital stock of $54,000,000, in shares of $100 each, and that these have recently been selling at $800 per share on the San Francisco Exchange, but have now temporarily fallen 50 per cent., owing to "the summary execution of a larger number of speculators on margin." He estimates that Consolidated Virginia will shortly pay monthly dividends at the minimum rate of $166 per share (upon the nominal capital of $10,800,000, the amount having been increased to $54,000,000 since his report was made) per annum, which will be increased from year to year as the crushing power is increased. The Consolidated Virginia, he says, with the large amount of dividends already disbursed, nearly $3,000,0000, and its present ability to pay much higher ones, in consequence of its recent rich developments, ranks first among the richest silver mines in the world. At California Mine the explorations which have taken place by means of cross-cuts into the different parts of the mine demonstrate that the richest section of the ore body, discovered in one of the cross-cuts of the Virginia, extends into the California ground, and gives an idea of the incalculable wealth contained in it. This mine, being under the same management as the Consolidated Virginia, can be worked at once, as the present hoisting works and shafts are quite sufficient for any quantity of ore which may be removed at the same time from the two mine.

In his concluding remarks Col. Berton says that the local spirit of speculation, after having submitted the stock of the Virginia to a series of the most exaggerated fluctuations on the San Francisco Exchange, will soon die out, and the speculative capital which, under its control, raised the shares of that property to the present high figure, in anticipation of dividends at the rate of 5 per cent. per month, will soon be withdrawn in favour of some other of the numerous undeveloped mines awaiting the support of the speculative floating capital of California. For all the above reasons, he does not hesitate in recommending the Consolidated Virginia Mine, as offering one of the most desirable mining investments on the Pacific Coast.

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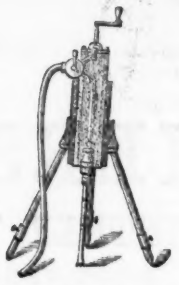

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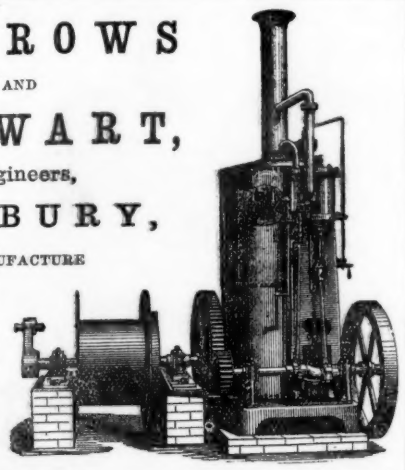

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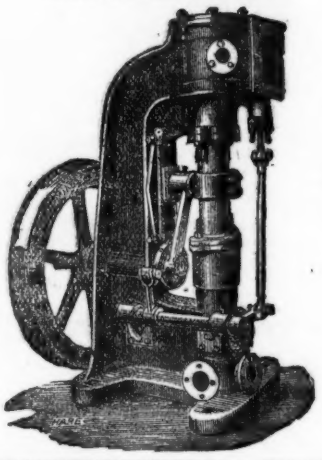

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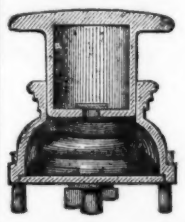

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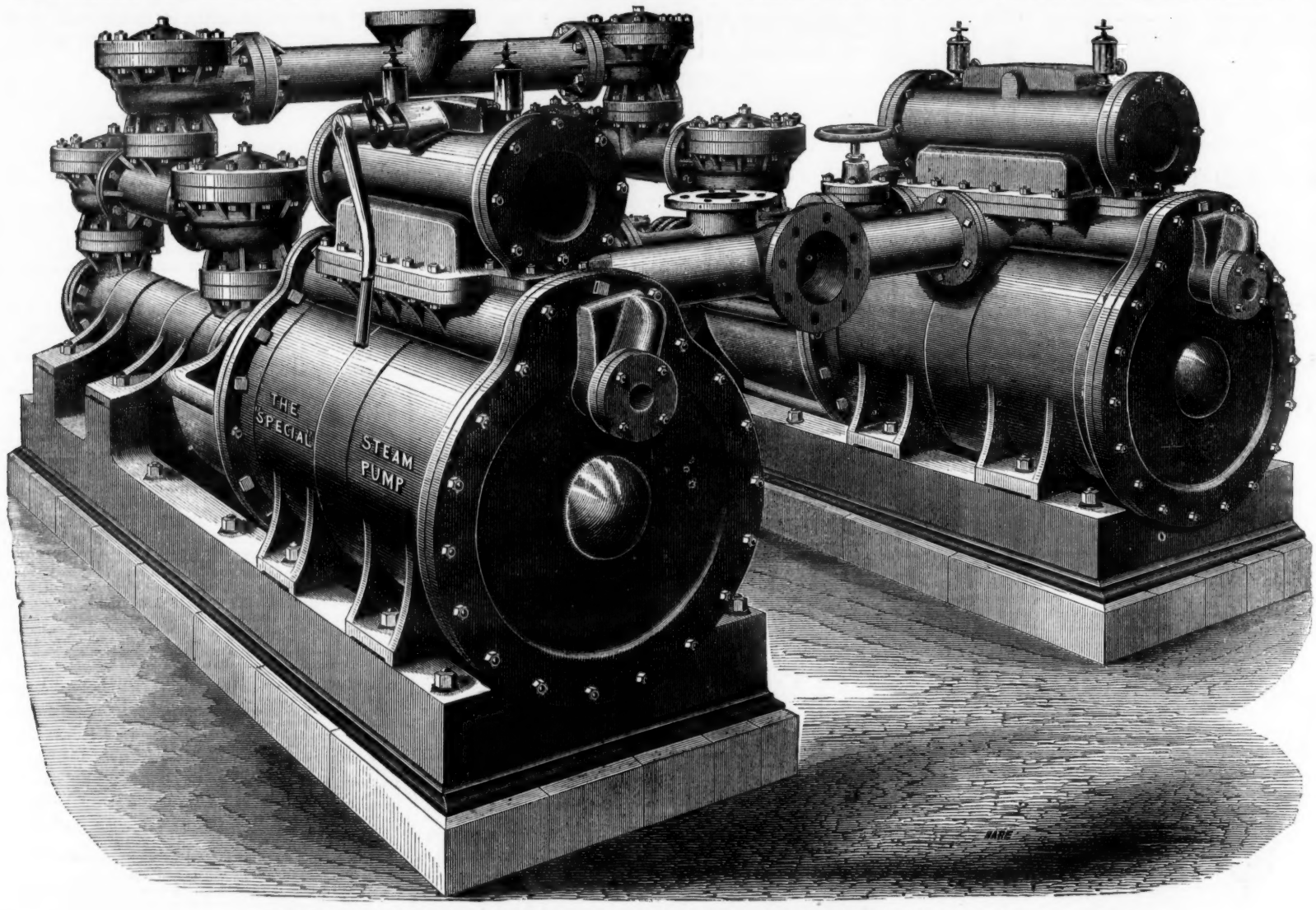

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Ditto of Water Cylinder .....In.	3	3	3	4	3	4	3	4	5	4	5	6	4	5	6	7	5	6	7	8	5	6	7
Length of stroke .....In.	24	24	24	24	36	24	36	36	36	36	36	36	36	36	36	36	48	36	36	36	48	48	36
Gallons per hour approximate	1830	1830	1830	3250	1830	3250	1830	3250	5070	3250	5070	7330	3250	5070	7330	9750	5070	7330	9750	13,000	5070	7330	9750
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Length of stroke .....In.	36	36	36	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Gallons per hour approximate	13,000	16,519	20,000	7330	9750	13,000	16,519	20,000	9750	13,000	16,519	20,000	30,000	13,000	16,519	20,000	30,000	40,000	13,000	16,519	20,000	30,000	40,000
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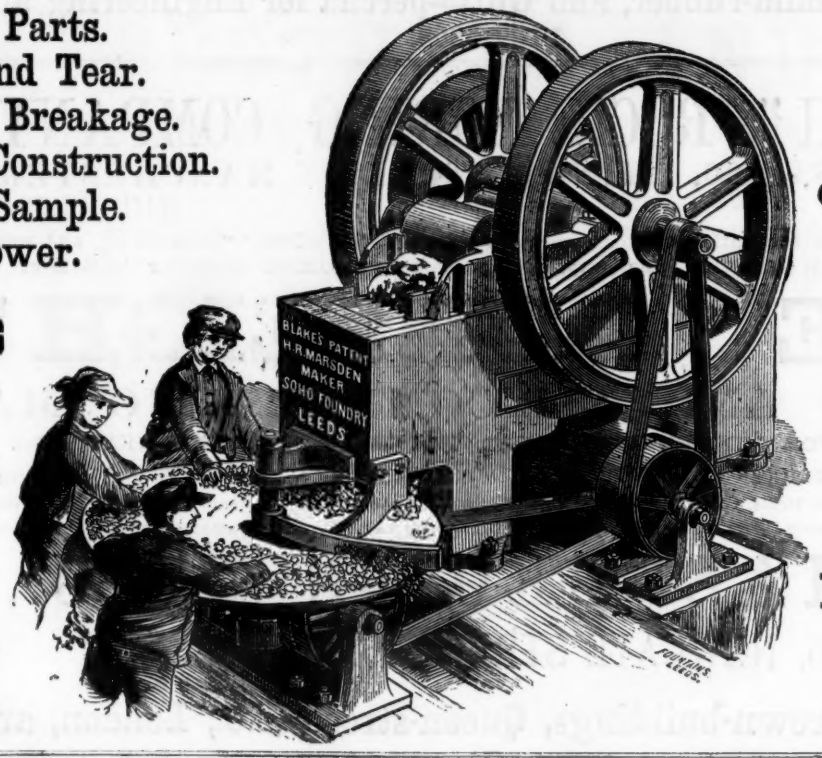

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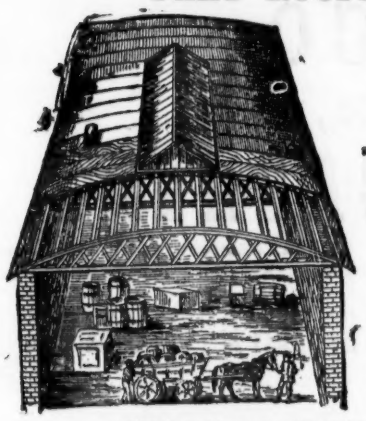

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